COMMODORE

COMPUTING INTERNATIONAL

JULY 1987

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COMPUTER CREATIVITY

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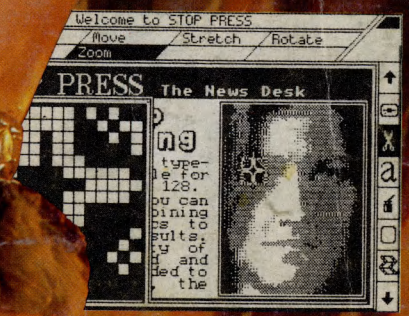
GRAPHICS...
MUSIC...
DATABASES...
PREVIEWS...
PROGRAMS...
OFFERS and the
BARBARIAN'S
HERE TOO!



ZOOM IN ON THE AMX MOUSE!!!

THE AMIGA 500 REVIEWED

AMAZING GAMES! DEATHSCAPE ► CHAMPIONSHIP BASEBALL ► GREAT ESCAPE ► VAMPIRE ► MARIO BROS ► ARMY MOVES ► DOGFIGHT ► STRIKES ► KILLED UNTIL DEAD ► RINGS OF ZILFIN ► WIZARD'S CROWN ► SHARDS OF SPRING ► AND OF COURSE THE BARBARIAN – PLUS MUCH, MUCH MORE!

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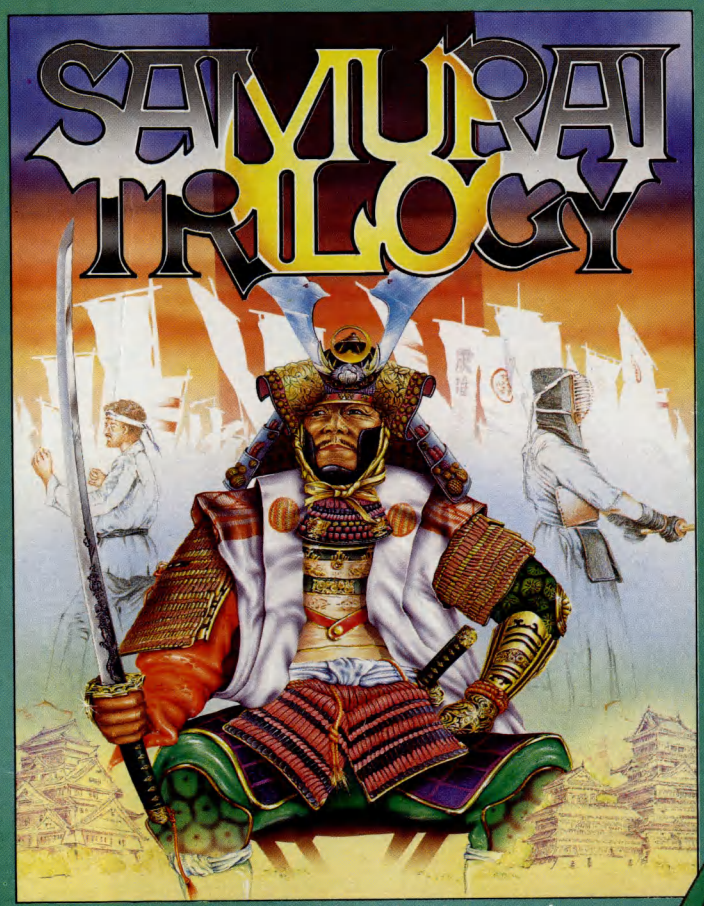

In an age in which honour was revered, from a time when grace and beauty were virtues, a class of warriors set themselves apart to dedicate their lives to a perfection in combat that in itself was an artform, to a discipline of mind that became a religion. The attaining of such excellence required an extraordinary diligence in self-denial and training in order to achieve the ultimate accolade 'War Lord'. Kendo, Karate and finally Samurai are the tests that must be mastered before such honour can be bestowed.

Gremlin's springiest star is set to bounce straight back into a new adventure. Following his world saving exploits against the evil toy goblin and his monstrous toys, Thing's enjoyed his much needed recuperation, oiled his springs and is now raring to go. What next?... he must finish the job properly and halt the factory computer auto producing these hideous toys. A quick hand and dogged determination are needed if you're to get anywhere with Thing in his latest escapade.

Monty the Mole is still on the run on his most exciting and exacting journey to date, a whistle stop tour of the capitals of Europe, acquiring more than just the local scenery on the way. With Intermole and the local gendarmes hot on his tail Monty must fill his booty bag with enough continental treasures and currency to effect an escape to his dream island ... Montoss.

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CCI View

Dear Reader,
Living in the computer and the magazine world is living in the permanent future. Computer developments, especially about Commodore, are talked about for months before they happen. By the time they do, they often seem out of date. And, as magzines work with such long leadtimes — we begin planning our July issue back in March or April — we sometimes have to anticipate events rather than wait for them to arrive.

When we launched our Amiga magazine this time last year, we were the first outside the U.S. and many people thought we had taken a crazy risk on an untried computer from a company with a dubious future. In this issue we are, at last — it seems an awful long year to us! — able to give you a full review of the much talked of A500; the real mass market Amiga.

Yes, we finally got our hands on one, just in time for its launch at the Commodore Show. From the experience we've had of it, when we hailed the Amiga as a popular world beater, we were a full year in advance of what a lot more people are saying now.

Commodore's own situation has improved too although it still has its everlasting upheavals, as you can read in this issue. And there have also been major improvements in everything from games to graphics programs, which we cover here too. The whole Commodore standard has risen enormously.

From what you tell us, you think CCI has also grown and changed for the better. With top writers like Jeff Minter, Ian Waugh, Ian Bennett, Peter Gerrard, Bill Donald, Bob Collyer, Andy Moss, Tina Malan, Courtney King, Zack Skinner and Tony Horgan, a new addition, CCI has a team of star Commodore writers that no other magazine can match. We'll try to go on giving you unrivalled coverage of the whole Commodore world no matter what changes take place — and go on, we hope, successfully predicting the developments that will be of importance to you in the months ahead.
Yours sincerely,

Antony Jacobson
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Artwork..... Teresa Genève
..... Paul Cummins
Hewson Illustration ..... Martin Farrer
Photograph ..... Paget Joseph
Research ..... André Jacobson-González

Contributors..... John Arthur
..... Zack Mule Skinner
..... Bill Donald
..... Courtney King
..... Tony Horgan
..... Jeff Minter
..... Andy Moss
..... Ian Waugh
..... Rae West
..... Tina Milan
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Gremin: Thing Bounces Back!

Gremlin's springiest start is set to bounce straight back into a new adventure!

After a much needed recuperation, Thing's oiled his spring and is raring to go. You'll remember that in his last encounter with the evil toy goblin, his mission was to save the world from the hideous and monstrous toys, pouring from the underground factory.

Having dealt finally with the toy goblin, who reigns no more — the challenge this time is for Thing to finish the job and stop the factory computer auto-producing the toys.

As super fit as ever, Thing must bounce round the factory complex in his search for software to aid him in his reprogramming venture. He can alter the layout of the rooms through which he travels to suit his purposes, and has access to the factory pipe network; Thing travels through these pipes at breakneck speed to get from screen to screen.

As always, our hero's life is not easy. Weird and wonderful goblins lurk in every location, anxious to deplete Thing's oil stocks. If reduced by too much, or if Thing bumps his head too often, his spring seizes up!! Water rushes at him in the pipes, surfaces explode under his spring and iron chickens aim alien-filled eggs at his unsuspecting head to name but a few perils!

A quick hand and dogged determination are needed if you're to get anywhere with Thing in his latest escapade. The music has been specially composed by Rob Hubard and Ben Dalglish.

MASK

Gremlin have grabbed another show title. Matt Trakker, MASK agent extraordinaire has a mission . . . Together with war damaged Thunderhawk, his own special transporter, Matt embarks upon a journey through space and time in search of his colleagues.

After having located his own special mask, Matt's route takes him through the two dimensions of space and time as he scans planets for the missing agents.

Matt must navigate Thunderhawk through perils, collecting items which may aid him in his quest and at all costs, avoiding the hostile VENOM patrol craft. These craft may be destroyed either by being shot or bombed, but bombing has the added danger of self destruction for Matt if he doesn't excape before it explodes! In the event that Thunderhawk incurs danger-level damage, a repair kit may be collected and used. Various weapons can be utilized by Matt — all will gain him points and the obvious advantage of defence, but he must remember throghout to be on the look-out for the security key pieces. Each security key is made up of four pieces and once assembled the key will allow Matt access to a scanner. The activated scanner (at the bottom of the screen) will point to where an agent is located, and tell Matt when he is near. Once he has found his agent, they must both then examine the scattered MASKS until they find the agent's own missing one. Matt has to examine all the different time periods and collect the agents from each.

Mask I is the first computer software game ever to be based upon the adventures of Matt Trakker and co. The location, characters and every other minute detail are accurately portrayed and have been taken directly from the cartoon animation. Gremlin have of course personlised it with their special blend of programming talent and ingenuity; Mask I is reputedly highly addictive and features a life-like multi-directional inertial scroll. Fans of MASK either in print or on screen will be delighted at this new MASK dimension, and newcomers to the MASK phenomena will, Gremlin tell us, be instantly enthralled.

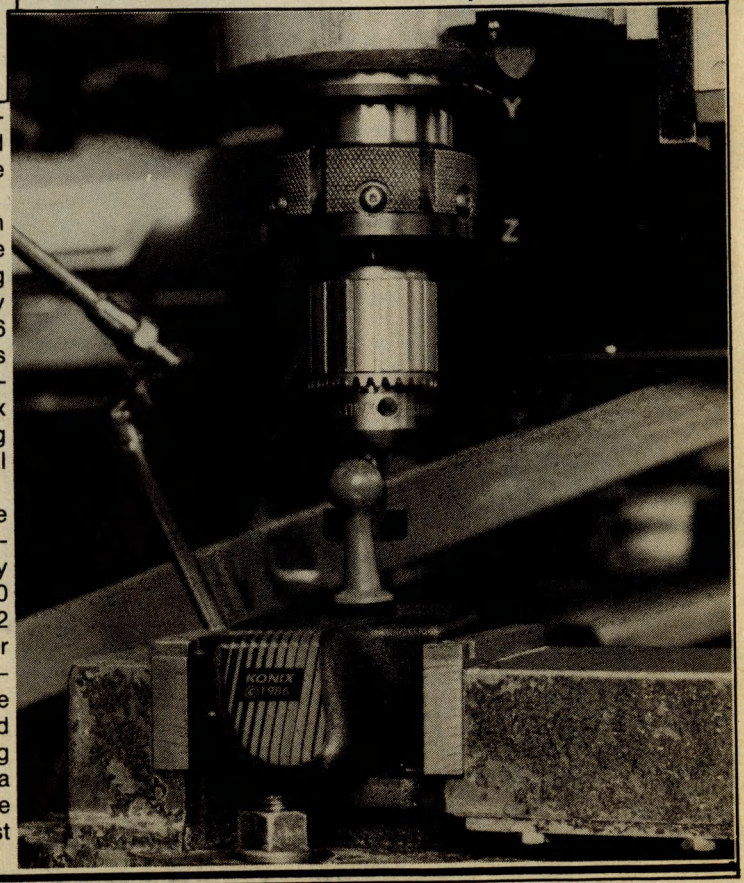
Konix Test to Destruction?

The Konix Speed King joystick lasts for at least 3 weeks under constant use, when waggled at 450 w.p.m. according to a test currently being carried out.

The Konix joystick is currently being punished at a blistering rate of 450 waggles per minute by an electric drill. The drill is linked to a lever which manipulates the joystick at the appropriate rate. The joystick in turn is linked to an Amstrad 6128 computer which will indicate when the joystick ceases to function. The program was written by Christian Urquhart, co-author of Daley Thompson's Decathlon, who is also supervising the test. Christian has calculated that 450 Ws per minute is a very satisfactory rate when playing Daley Thompson's Decathlon and would lead to qualification from the first round in the 100 metres.

These test has in fact been running for 7 weeks, but the factory where it is being carried out is only normally open for 12 hours a day, 6 days a week, and also fears were expressed that the computer would overheat. Konix are sure that by staggering the test in this way the final result will be unimpaired.

The test, which is surely the ultimate challenge for a joystick — after all how many humans could run the 100 metres in 9.9 seconds for 12 hours a day, 6 days a week for 7 weeks and not look tired — was first announced at the end of last year. Konix invited the public to guess how long the joystick would last and a £100 prize is available to the individual with the nearest guess.



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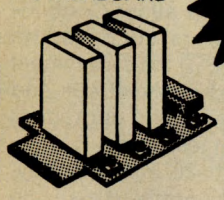

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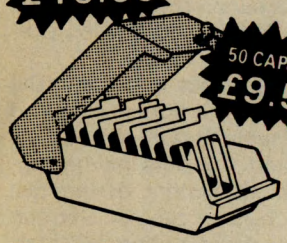

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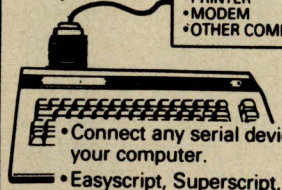

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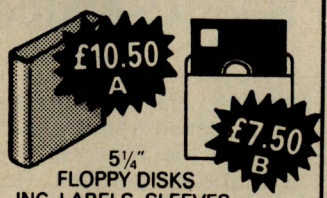

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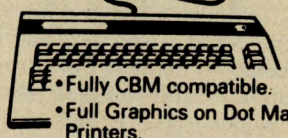

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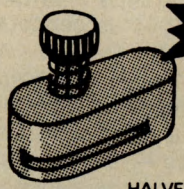

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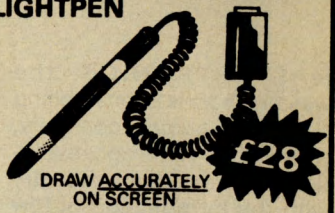

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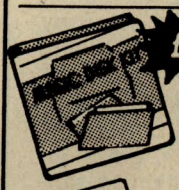

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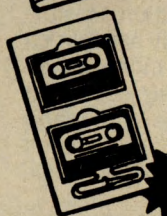

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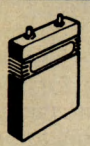

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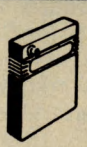

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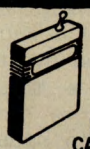

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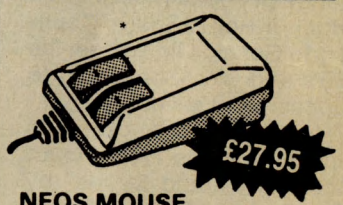

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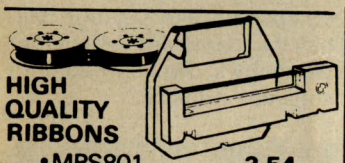

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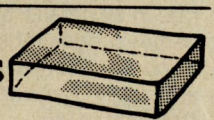

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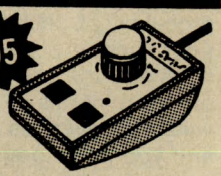

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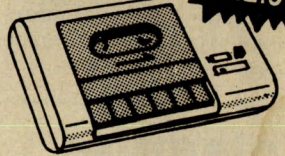

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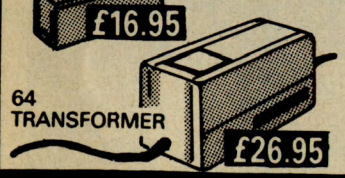

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Mastertronics Hits New Note

MASTERTRONICS, the western worlds largest selling computer games company, which three years ago revolutionised the games industry with the introduction of low price quality software, has moved into the music market.

The company has formed a new subsidiary known as MASTERSOUND to market the product. The company already has an extremely strong presence in all major multiples including Woolworth, W H Smith, Boots, John Menzies, Martin's, Carrefour etc. etc. In addition Mastertronic is currently servicing a wide range of independent outlets including specialist computer games, video and music dealers, all of which will be offered the new music range.

The Mastersound label has been launched with a wide range of popular music from Rock 'n' Roll to Soul to Country to Golden Oldies from the 50's and 60's. Something to appeal to all tastes.

Some of the classics included is the recent chart topping "Strand By Me" by Ben E King, "Rock You Baby" by George McRea, "Rose Garden" by Lynn Anderson, "My Guy" by Mary Wells, "Lucille" Little Richard, "Da Doo Ron Ron" by The Crystals, "Lets Twist Again" by Chubby Checker and many more. With recommended retail prices are from £1.99 (of course!)

The Butler did it!!!

The latest game out from Argus Press Software is "The Detective", a thrilling "who-dunnit"!

Programmed by The Magnificent Seven, Argus are enthusiastic about the graphics on "The Detective". The characters they say have some great expressions. "Watch out for the cook — she wobbles as she walks. The Professor exudes an air of pre-occupation... and occasionally gives some very useful advice! Gabriel even gives a little wiggle now and again."

In the vein of all the best "Agatha Christie" stories, "The Detective" is peppered with red herrings... As Inspector Snide, you begin your investigations in the Big House. You must collect all the evidence — 10 items in all. After you have the evidence, you may accuse any of the members of the household — but as you go about your duties, you will find people dropping like flies!

This graphics adventure has some useful features — such as an icon controlled investigation menu, and a pause feature. "The Detective" runs in real time, so the pause feature comes in hand when you need to recap!

The combination of music, witty quips from the characters, and a mind-boggling challenge look like adding up to make "The Detective" a game to look forward to.

Interface Anything

Meedmore Distribution tell us they now have the country's largest range of interfaces for Micros following the recent addition of 47 new models to their range. They offer a full technical support service which is regularly used by majors such as Commodore, Smiths, Boots and Silver Reed. The service is extended to dealers and end-users alike with the claim that they have yet to fail to interface anything.

The new range includes interfaces to allow Commodore printers such as the popular DPS1101 daisywheel to be used on Amstrads and other PCs making upgrading from CBM less costly.

Contact: 28 Farriers Way, Netherton, Merseyside, L30 4XL. Tel: 051-521-2202.

Germans sink Silent Service

Silent Service, a best-seller in the U.K. and the U.S., has been banned from the open sale by the West German authorities for being 'too realistic'.

Silent Service from MicroProse — an accurate simulation of a World War II submarine in action — can now only be purchased from regulated outlets such as sex shops.

The decision to outlaw the simulation, known as the Das U boot in Germany, has been made under legislation known as the youth Dangerous Publication List.

This law seeks to protect German youngsters from a range of products including pornography and any material likely to incite aggressive behaviour.

While admitting it is accurate in all details, MicroProse denies suggestions that Silent Service is likely to encourage anti-social behaviour among German Youth.

As a result the company is to appeal to the German authorities to re-think the policy of banning software under this Act — and is even prepared to go to court.

MicroProse president Bill Stealey — a fighter pilot and adviser to the UK Joint Chiefs of Staff — insists that he supports the intent of the List which is to protect German youth from outlandish, garish, pornographic and excessively violent graphic representation.

Speaking at a press briefing at the US Embassy in Grosvensor Square, London, Bill Stealey said; "We believe the time has come for the German authorities to take a second look at legislation which — wrongly in our opinion — lumps together computer software with pornographic videos."

"To drive sophisticated software into the back streets is not only harmful to overseas companies like us, but will have a damaging effect on Germany's own burgeoning software industry."

MicroProse· Bill Stealey stands up for Silent Service.

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Unfortunately for you, the problems of planet earth — poor economy, hostile reactions and the varying values of the minerals — are prevaient all over the universe, and you have to ensure that you are totally prepared to deal with the aliens of each planet.

Melbourne House tells us this game is a clever combination of stunning 3D vector graphics, text communication with alien computers, who have witty and wide-ranging vocabulary, plus a neat flight simulator to land on each of the planets.

It will be available on the C64 £8.95 in mid July.

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Picasso's Revenge!

Ian Waugh hits the canvas to paint you this picture of a new graphics package.

Where will it end? First we scratch on the ground, then we draw on walls (this is still the favourite medium of many of our more *loodicrous* artists), then we move on to paper, charcoal, paint and canvas and now here we are drawing on our tellies.

There are hundreds of drawing programs available for the Commodore (Waugh, if I've told you once, I've told you a million times — don't exaggerate). Picasso's Revenge is different rrom most in that you draw with a light pen instead of a joystick, a mouse or the computer keys and in fact a light pen is included with the package.

The manual begins by telling you to plug the light pen into Port 1 and then type LOAD"BOOT",8,1 to run the program. It also tells you that the Z, C, B, M and right SHIFT keys are disabled so my "BOOT" ended up as "OOT" and I wondered why the program wouldn't load. (Lack of these keys is also an irritant when choosing file names.) I tried "*" instead (I could have unplugged the pen, too) and off it went before I could say Pablo.

The drawing section has a colour menu along the top and an options menu along the bottom. Selections are made by plotting the pen at the required option and pressingthe CBM or CTRL key to activate it. I should grumble but my Commodore is situated to the right of the screen and as I'm right handed I had to perform contortion with my left hand to press the key. Some light pens are activated by a small switch on their stem which frees you entirely from the computer keyboard. One of those would have been nice but that apart, it worked fine.

Textures

Before the main program loads you are asked if you want to design some textures. These are combinations of two primary colours plus the background colour (white) and you can save up to six textures at once to a texture file. When in the drawing mode you can allocate different colours to the texture so the range of possibilities is indeed vast. The program contains lots of predesigned textures to get you started.

Let's have a quick run through the menu options. The disk handling section lets you load and save screens and format a disk (super!) but there's no file delete option.

The print routine caters for Epson/Gemini, Okidata, NEC/C.Ito and Commodore 1525 and 1526 printers. It produces nine shades of grey to represent the colours but some of the colours, naturally enough, produce the shades so unless you restrict yourself to contrasting colours the printout may suffer from lack of definition.

There's a host of drawing aids such as fill, an indispensable zoom and a mirror option to produce kaleidoscope effects and which is great for drawing insects. You can adjust the brush width, paint with a texture or spray colour on!

A second menu allows you to draw shapes: circles, straight lines, triangles etc., add text and move and copy areas of the screen to other parts of your drawing.

I particularly missed an Undo option to remove the effects of an unwanted fill or shape but you can regularly save your work to minimise disasters. The manual says the pen may be insensitive to red and black — and it is — which makes editing in these colours extremely difficult, even in zoom mode.

Print Utility

As well as the drawing program, Revenge contains a Print Utility whic loads and prints files from other graphic packages such as Sorcerer's Apprentice, Koala, Paint Magic, Super Sketch, Flexidraw and Print Shop. The disk contains a couple of pictures from these programs which the manual doesn't tell you about (one of which wouldn't fully load).

The manual contains illustrations of some nice sketches which are not on the disk (shame!) but the disk does contain five excellent Revenge pictures (hooray!), the sort of thing which makes you think the artist spent a lot of time in the zoom facility. A light pen is easy to use but it's not the most accurate drawing method.

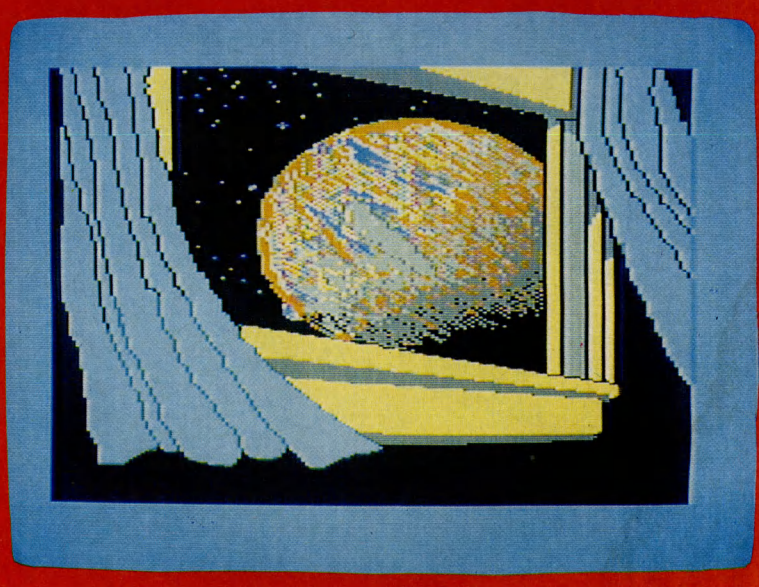
The manual also contains a short BASIC routine (why is it not on the disk?) which lets you load and display pictures from within your own programs.

Picasso's Revenge is fun. It's one of the easiest drawing programs I have ever used and although dedicated art package aficionados may quibble that it lacks this or that facility, it is generally quite comprehensive. It's just the thing if you like slinging paint onto the canvas. You don't get bogged down in menus, you can dive straight in and paint!

At £29.95 it may seem a little on the steep side but you do get a light pen with it and it is a program any doodler worth his camel hairs will come back to again and again. Yes, Revenge is sweet! (Sorry, couldn't resist, that!).

I.W.

Contact: Precision Software Limited, 6 Park Terrace, Worcester Park, Surrey KT4 7JZ. Tel: 01-330 7166.



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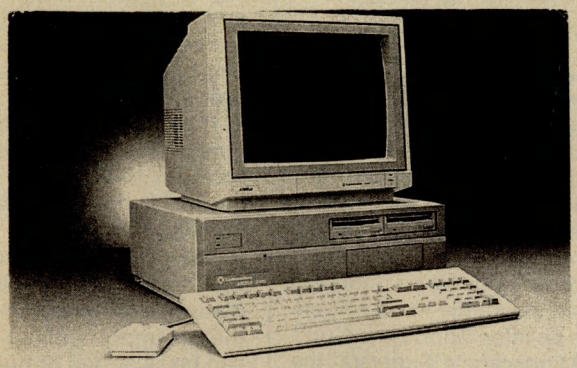

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Commodore Developments

Commodore International Limited has announced net sasls of $160.5 million and net income of $1 million, or $0.3 per share, for the third fiscal quarter ended March 31, 1987. This compares with net sales of $182.3 million and a net loss of $36.7 million for the year ago quarter.

For the nine months ended March 31, 1987, the Company reported net sales of $616.3 million and net income of $26.5 million, or $.83 per share. During the same period, shareholders' equity increased approximately $38 million.

In commenting on the results, Irving Gould, Commodore's Chairman and Chief Executive Officer, stated, "We are pleased with the continuity of profitability over the last four quarters. Although this quarter's sales reflect a slowdown particularly in the U.S. from the high level of the December quarter, we had a very strong performance overseas which accounted for over 70% of total revenues." He added, "Actions have been taken recently to strengthen management and streamline U.S. operations to improve productivity and profitability to complement the achievements of our overseas operations."

Commodore also announced the completion on April 28, 1987 of the final documents renewing the Company's master credit facility with its major lending banks. This finalises the agreement in principle which was reached with the banks last October for a credit facility of $140 million. Since then, the Company has reduced this facility by approximately $25 million. Over the past 18 months, total bank debt has been reduced by $110 million.

Mr Gould concluded, "Our new Amiga products are now being produced and shipped in Europe and are about to be launched in the United States. With the new Amiga products coming on stream and our continuing efforts towards further cost and operating efficiencies, we are well positioned to propel the business forward."

There have been further major changes in what Irving Gould referred to 'streamline . . . management: Chris Kaday CBM's UK Managing Director has departed and Tom Rattigan, CBM's international chief executive has gone after a boardroom clash with Irving Gould — who holds some 20% of CBM's shares. Rattigan is taking legal action and sueing Commodore for $9 million. CBM is taking the line that there is no justification for his action and that his departure will not affect its future. As one experienced observer of the Commodore scene said, "Commodore is notorious for its battles for corporate power. What counts is its products which are of such quality that they succeed in spite, not because of CBM's management. With the new AMIGA 500 they're probably in a stronger position now than for years."

High Price Code Masters

Code Masters, who have always claimed that although their games retail at £1.99 they are of full price quality, have announced figures which prove that programmers can earn as much from converting buget software as they can from full priced products.

The conversion fees were publicised in a recruitment advertisement which listed the the price of converting 13 of Code Master games. For example, £3,000 was offered for the Spectrum version of Grand Prix Simulator, a fee which is superior to many conversion rates for full priced products. Improved high royalty rates are also available to programmers who originate software.

The high fees are feasible because Code Masters' games sell in high quantities. Budget software houses face a dilemma. To pay programmers enough to produce games of full price quality, excellent distribution is required. Excellent distribution is only forthcoming if products are of a very high standard. Code Masters seem to have cracked this chicken and egg situation.

Code Masters' Jim Darling says "We are currently spending in excess of £31,000 converting our titles to other formats. To all intents and purposes our budget for top quality original games is almost unlimited. We are determined to produce games of outstanding quality".

Superstar Ice Hockey

The buzzer sounds; twelve players hit the ice. Skates scrape and sticks slap as your team tights for the elusive puck. You survey the ice: is it time to retire an aging veteran? Does your franchise have the mettle to take home the coveted SportTime Cup?

Mindscape's 'Superstar Ice Hockey', the first 'complete' computer hockey simulation, offers a fresh approach to player involvement. It allows one or two players the chance to battle the computer, to battle each other, to coach a team and to manage a league. Players actually age, leagues are realistic and the on-ice action practically bruises your computer.

As a player, you take the ice as centre or goalie: fire slap shots, hip-check opponents, make slick passes and block shots. As the coach, you set up and rotate your players' lines. Finally, as general manager, you trade and draft players, send them to training camp and aim to build a weak franchise into a contender for the SportTime Cup. 'Superstar Ice Hockey' Mindscape tells us, bring a new dimension of realism to computer sports simulations.

'Superstar Ice Hockey' is for the Commodore 64/128 at $34.95.

Re-Bounder

Bbbbbounder is bbback! The tennis ball that doesn't play tennis is returning to the games scene — not to brandish a racquet but to star in his very own sequel.

Imagine a 3D world of colourful hexagonal slabs, collapsible floors, high speed bouncing and superb sound punctuated with impenetrable walls, mystery bonuses and super-intelligent waves of aliens who hunt in fleets.

Bounder, as you'll remember from the first program to feature him, is a highly intelligent tennis ball. With your help he must hurtle through 18 levels of enemy infested scrolling platforms in an attempt to reach the Master Alien. Many obstacles have to be overcome along the way — fleet aliens of ever increasing intelligence must be shot and war must be waged on the sentinel who waits at the end of each level. Bounder's pressure must be monitored as if it is ignored, it will cause him to deflate. On the other hand, re-pressurising Bounder too highly will result in a burst ball!

Self-protection comes in the form of designer armour plating and this along with the all important fire power can be swapped or bought at specialist shops, dotted throughout the course of the game.

Simply continuing to exist in the face of all this danger is an uphill task. Nothing is what it seems but every question must be explored and every Alien fought to the death if you're to succeed in Re-Bounder.

Gremlin tell us Re-Bounder, will be fiendishly addictive as its predecessor. Bbbbbrilliant!

D.I.'s Falcon

Digital Integration is developing a simulation game based on the most sophisticated combat aircraft of the Western Alliance, F16 Fighter Falcon by General Dynamics.

Davie Marshall, Digital Integration's founder and managing director said: "I am pleased that due to improved programming techniques developed by us, we are able to increase multifold the density and variety of screen objects. Missions will include air superiority and ground attack roles. We are talking to General Dynamics on matters of collaboration."

Ilya Girson, Digital Integration's Chief Executive: "Delighted to be associated with such a challenging project. The idea of controlling a megacomputerised craft and combining it with a realistic combat scenario is what the buying public demanded from us for a long time. We are all buzzing with excitement."

The project is being developed in parallel for Commodore 64 and planned for release in the last quarter of 1987.

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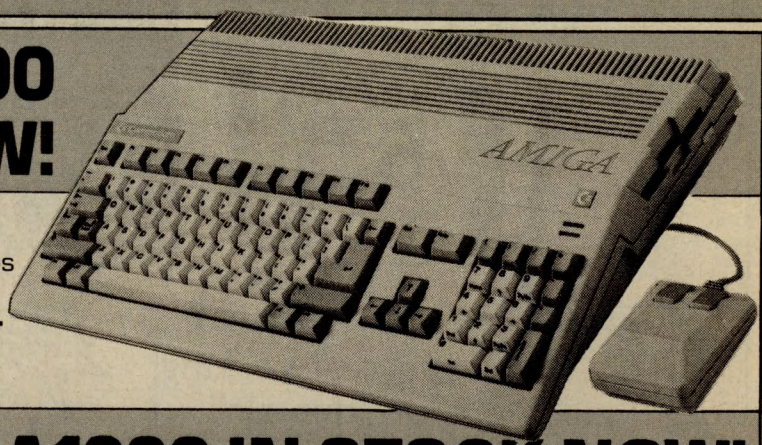

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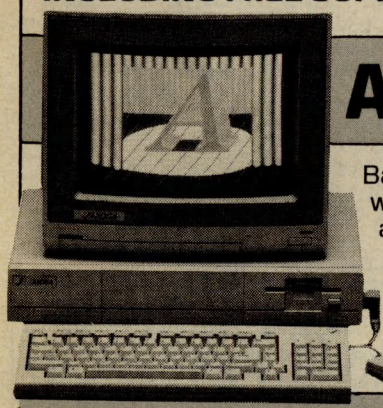

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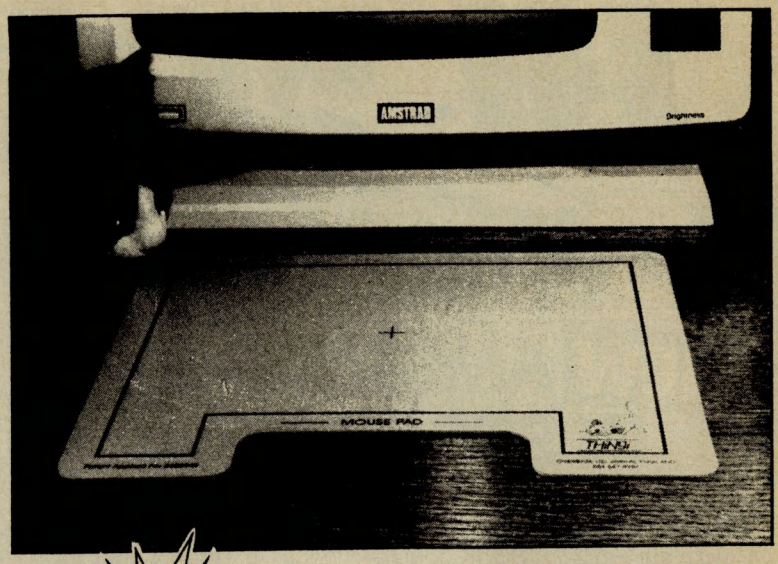

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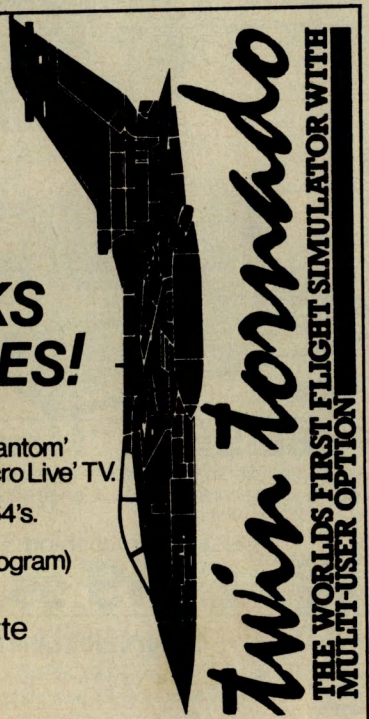

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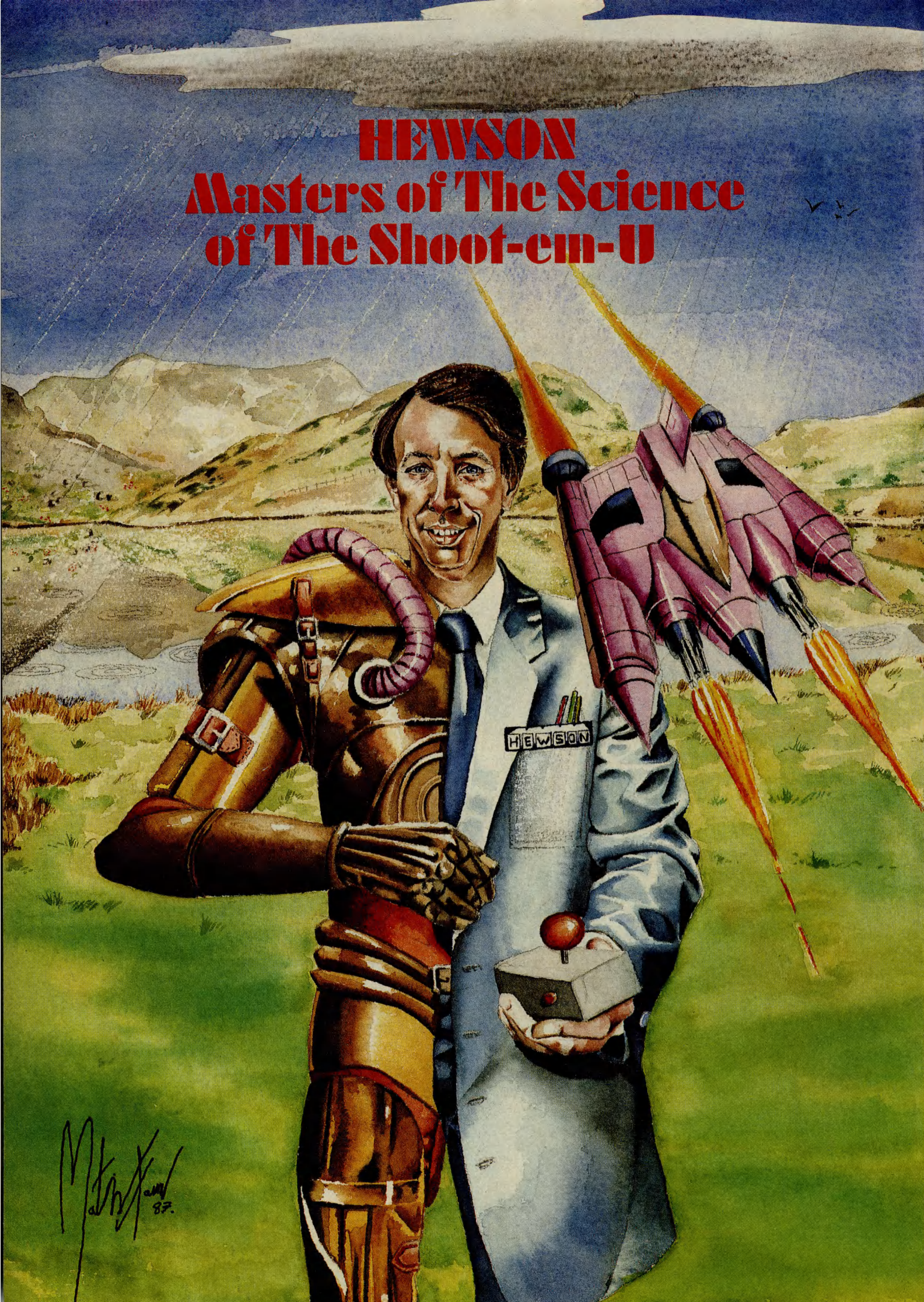
HEWSON
Masters of The Science
of The Shoot-em-U
HEWSON

Hewson — Market Leaders

"Our difficulty," muses Andrew Hewson, "is that we are trying to do something different". Different? That is an unusual ambition for a games computer house. In today's high cost, high risk market, most companies are very anxious to aim in exactly the opposite direction. Fearfully, they attempt only variations of already established successes. Someone's had a hit? Let's copy it! Pioneers, they intimate nervously, get their heads blown off. Play safe, do what everyone is doing . . . Don't create, imitate . . .

Hewson's is a special viewpoint. But then Hewson — the company not the man — created what is probably the most imitated computer game ever — Uridium. Regarded by many as the shoot 'em up not only of 1986 but of all time, Uridium was a revelation. Its sharp heightened contrast, its relief graphics; its ultra smooth and fast scrolling, above all, that sheer magic addictiveness with which it gripped players of all ages, making everything that had gone before look slow and cumbersome, spawned a whole raft of clones. "It got a headache," points out Andrew Hewson wryly. He is not referring to the challenge it set others but that it zoomed to top place in the charts, hitting number one and staying there.

Uridium was programmed by Andrew Braybrook. Now widely regarded as among the top four or five Commodore programmers outside the U.S., "He wanted to create a *real* arcade game. He was busting to do it," says Hewson. That Braybrook almost achieved it cannot be denied. It was very close to reproducing the feeling of a real arcade game. *Too* amazingly close, a Hewson rival commented, to a Sega coin-op that looked very like it but scrolled the other way.

However, even envious rivals admit the outstanding quality of the game and the abrupt way it seemed to lift Hewson — and the whole shoot 'em up field — into another league. It took the company from being a small second or third games house up to the status of Market Leader. That re-rating had been some time in coming. For Hewson lays claims to being the longest established games house in the U.K. That itself may be considered a dubious distinction. For one of its competitors for that title — Mikrogen — celebrated about the same length of time in business at the last PCW Show, received a prize for the achievement and promptly got swallowed up by a bigger, hungrier company.

What's a lifetime . . .

At present there does not seem a great likelihood of that fate overtaking Hewson. Since its early days in 1980/1, it has progressed toward its current leading position with what in hindsight might have been seen as inevitability. Andrew Hewson, its M.D. and guiding spirit, is a stereotypical product of the amazing, almost unbelievable, rise and fall and rise again of the home computer software market. The amateur whose private interests and hobby drag him into a business where no-one has any professional experience . . .

After leaving Sussex University with a degree in chemistry in the early 1970's Hewson found a job at the British Museum. He worked in the research laboratory on carbon dating — the process by which the age of an object can be determined. "I thought the job was fantastic!" he grins sardonically. "Working in a museum . . . What's a lifetime there . . ." He was even published in the eminent scientific journal "Nature".

He bought his first computer in 1973. "Tremendous! A computer of my own!" When he left the British Museum in 1979 to join the Institute of Hydrology, it was partly to get involved with number crunching mainframes that were appearing in organisations needing huge calculations, as did his work on the Flood Studies Team. "Do you know there are 6000 rain gauges monitoring the rainfall every day in the U.K.?" He demands. Computers brought a complete transformation . . ." To deal with this complexity, he took another degree — in statistics at London University. "We were pushing back the frontiers of knowledge . . . he says, only half jokingly.

He began writing computer books — hints and tips on the ZX 80 — and having a computer at home meant that he could take the next step and begin writing games. The first was "Lunar Lander". "Bog standard" he calls it now. He sold it, as he had sold thousands of books through small ads in PCW and Practical Computing.

"When the Spectrum came along, the world changed. We" — his brother Gordon and himself — "began publishing other people's games . . . Maze Chase . . . Heathrow Air Traffic Control . . . We're still selling that!" He crows delightedly. This longtime sale has also happened with a more recent Hewson

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simulation "Southern Belle." It too has gone on finding customers long after shoot 'em ups released at the same time have fallen into the compilations.

But the effort to hold down two different roles was proving hard for Hewson. "I worked 14 hour days routinely . . . I asked myself which way are you going to jump?" The choice Hewson now thinks was inevitable. He was finding that charting the seasonal variations of U.K. rainfall — even if it was "pushing back the frontiers of knowledge" dull. So early in 1983, Hewson moved into software production full time.

Quality

One of the earliest decisions was to buy tape duplication equipment. They had found suppliers' quality unreliable. They moved the equipment and the whole business to the Milton Trading Estate near Didcot in Oxfordshire. They are still there. And they made it even more a family affair by recruiting their father to run the duplication side. Hewson jokes "Other people buy flashy cars, we buy duplicating equipment . . ." But the acquisition had its point. It enabled Hewson to get the quality it wanted.

Quality . . . a recurring theme in the Hewson approach to games, too. "We produced some nice games . . . stuff nobody else was doing . . . even for the Dragon . . . We still strive to be different . . ."

Hewson's first Commodore version was "Lunattack", converted by Andrew Braybrook from a Spectrum game by the company's other star programmer, Steve Turner. It was just a letter in the post that Turner sent them that started the relationship. That game, like many Hewson productions, seems to have been not just an individual work by a bright programmer but a project on which Hewson's own enthusiasm had influence. "It's not like book publishing . . . You've got to have some feeling for what is going on behind the screen . . ."

That technical know-how and personal keenness has evidently shaped the Hewson urge for "something different". He points out with some contempt, that following fashion can itself be totally useless and unproductive. "For example, that vertical scrolling . . . I saw four games at the Atari show with it on the ST . . . it just won't work!" Hewson has plans for the 16 bit machines but will only say "It will be something exceptional . . ."

Strong Team

Though originally a Spectrum specialist, Hewson is now fully committed to the Commodore format. He is also highly competitive . . ." We took them to the cleaners with Uridium . . ." He says with delight. "We're all lemmings . . . We all follow one another . . . Being original is very difficult . . . What do we have to guide us? Everyone goes out and looks at the arcade . . . It's a case of fiddling around and catching on to something that works . . ." He recalls another earlier Hewson/Braybrook success "Gribbley's Day Out". "When someone comes along to write the history of games, it will be in it. Nobody's done anything like it . . . He was experimenting . . . Gordon influenced it . . ."

Brother Gordon is no longer in the business but Hewson is emphatic that he has built a strong team "that could run the place for six months without me . . ." He is particularly forceful in his praise for Debbie Sillitoe, the sales and marketing manager who is also a member of the Hewson Board of Management. She has been with the company for over four years and is a very important figure in its successful marketing effort. Hewson leaves the marketing entirely to her and has recently handed over the P.R. role to Julia Coombes whose job is to raise the until the present somewhat modest Hewson profile. Both attractive women, Debbie Sillitoe and Julia Coombes' commitment to Hewson was recently tested publicly at a "game signing" session when the press called on them to drape themselves glamour pose style over the Hewson products. Not many games house executives have the right qualifications for that . . .

Both women have clearly absorbed the Hewson aim of "quality and polish". What most of all reflects it is the games. When "Paradroid" first appeared, it had that same touch of style. Hewson recalls seeing the original demo. "It looked very good . . . Bas relief graphics were developed in Paradroid . . . but you don't need to overdo it . . . just because there are three music channels on the 64, you don't have to use them all the time . . . or all the colours on the ST . . . You can hint at things . . ."

Eagles and Zynaps

When Hewson looks at his company's record of quality, he is clearly proud but he shows his greatest pleasure again and again at the "Uridium Effect". "It made me feel tremendous! It made a mark on the 64! . . . It's still in the readers' favourites charts . . . But" He wonders, "How do you do it again? . . ."

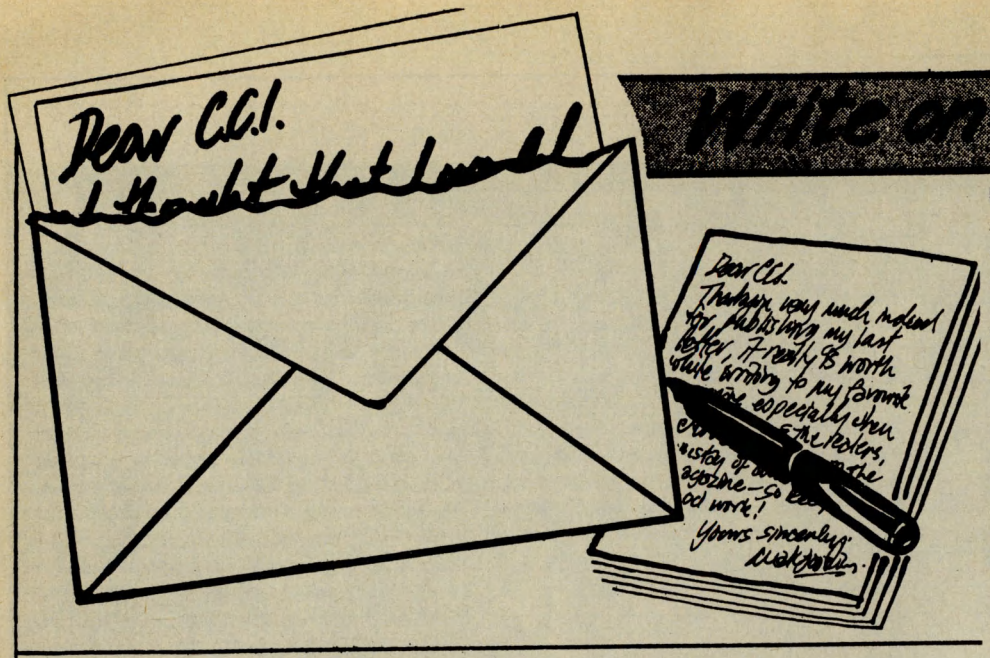
Hewson have two games coming out that they see as highly likely follow-ups; "Eagles" — a horizontally scrolling shoot 'em up that is ready for release and "Zynaps" . . . for my money, I don't think there's anything to touch it."

CCI was given a privileged preview look at "Eagles" and "Zynaps". Both games are crisply playable with that special Hewson quality of reaching just a step further than others go. They have a class look about them from the smoothness of the movement to the sharp clarity of their colours.

This year "Eagles" and "Zynaps" will be two of the around twelve titles Hewson release — double the number of 1986. "We've got to do two things" says Hewson. "We've got to make money and be different. And" he points out "they are not synonymous . . . We can't be like anybody else . . . Mirrorsoft are going down one path . . . Ocean one format . . . We've got to keep on being different . . . My influence must be in development . . . I want to go out and create something . . . 2 years from now though, with the 16 bit machines like the Amiga, a lot of the sameness will be shaken out . . . It won't be 6 week chart hits . . . There'll be more long term selling products which don't rely on being different but on being interesting . . ." In four years, when he is 40, Hewson says of his company . . . "It's all got to be working then . . ."

Hewson is not a tranquil man. He moves sharply, gestures in jerks, grimaces; gives the urgent feeling of a bundle of energy barely held in check. It is hard to imagine him in the British Museum dating fossils . . . Yet under the businessman there still is the sense of the academic whose values — quality . . . originality . . . polish . . . the pursuit of excellence . . . show in the games that Hewson brings to the screens of home computers . . . Consciously or not, Hewson still aims at "pushing back the frontiers . . ." He does not see his games as factory products "There's a little bit of me in Zynaps . . ."

The games buying public recognised this in "Paradroid" and especially in "Uridium". Can he pull it off again and go on being "different"? Can he combine creativity with profit? Can he retain his pioneering ambitions in the ruthless struggle to top the charts? Andrew Hewson does not seem to doubt he can achieve those often opposing ambitions. It will be interesting to see if he is right.



Write on..!!

Dear C.C.I.
I have noted with pleasure a steady improvement in the standard of CCI in the eighteen months I have been reading the magazine: I have little doubt that it is now the best publication I have seen in respect of ANY micro. I generally read CCI from cover to cover, and there is a lot of meat therein, including useful state-of-the-art info that would not disgrace the best of the non-machine-specific publications. So much so that I put my money where my mouth is! Please find my subscription order enclosed.

I cannot understand the continuing to-do about printers: Superscript configures Centronics printers. When not in the Superscript environment a simple cable and the "Commodore Connexion" will suffice. This letter is written on a Kaga Taxan, which is basically a Canon PW-1080A, with, as you see, a very nice HLQ font.

I welcome the introduction of the Strategy page. I am not basically a shoot-the-hostiles merchant, even though I can boast the combat status of 'Elite'!!, which is, however, a bit special, rewarding low cunning, strategic thinking and the patience necessary to become armed to the teeth before embarking on serious fighting. My particular obsession in the Strategy line is 'Colonial Conquest', a truly outstanding game which demonstrates that it is situation rather than outstanding sound or graphics which creates a truly memorable and addictive game — one to be recommended to megalomaniacs everywhere. I fear I can get by on a fairly limited selection of programs, which is bad news for the software purveyors, I guess, but these must be good of their type, e.g. the 'Pinball Construction Set', which conjures up fond memories of my misspent youth — and moreover allows me, if not exactly to cheat, then at least to stack the odds in my favour.

In which connection, I have never yet discovered a decent Cricket Game for the C64/128. CRL's 'Test Match Cricket' for the BBC B is excellent, but the C64 conversion is really crude and pathetic, and plainly by someone who knows nothing about the game. As the BBC version relies heavily on PROCS it has not been possible for me to adapt it for the C64/128, but eventually I shall probably have to write my own program. 'Graham Gooch Test Cricket' has some good features, but it is still basically unrealistic, lacks tension, and does not permit a decent or exciting two-person game, and the other cricket games on the market are even worse. All that is needed is a decent adaptation of old-fashioned card cricket. So somebody please oblige!
Lio Barst, London

So somebody please oblige!

Dear C.C.I.
Thank you for printing my letter in your January issue. I'm afraid I have an apology to make concerning my hint for Kung Fu Master. Instead of pressing control, 'G' try pressing shift 'G'. It should now work!
Yours apologetically
Greg McElen, Derby

Apology accepted!

Dear Sir
Today was the first time I purchased your computer magazine and I found it exceedingly good. I'm writing to you because I am considering buying a C16 or a Plus/4. At the moment I am in the stage of thinking how to find the money! But before I get the money I want to know if they are really worth it, if so which one? Can you give me any advice?
Yours sincerely
Stephen Cripps Esq
P.S. At the moment I've got a CBM VIC20.

Dear Stephen
At this stage we'd advise against buying a C16. Not because it isn't a good machine but the new 500 AMIGA is coming on stream and is a different dimension. Failing that why not pick up a good secondhand 64 from our classified advertising?

Dear C.C.I.
Howdy! First, you have a really great magazine! As a *Plus/4* owner since Oct 1985, I empathize with many of your readers regarding a lack of support for this great computer. However, at least they can find software and peripherals! There isn't a store in Cincinnati that sells *anything* for the Plus/4! And, I've only found one bookstore that has your magazine! Oh, Woe! I guess I'll have to convert my US greenbacks to your pounds and start shipping my precious bucks across the atlantic! Yes, and I'm already saving for a subscription to CCI...

What I have had to resort to (I have *no* commercial software) is to convert Apple, C64, VIC and C128 programs from magazine here — such as: Compute's, Gazette, Run, Softalk, and Incider. I just recently discovered how to change the Chrs set, so that helps in emulating sprites.

One last thought: I've not seen any columns or helpful hints with pokes for the Plus/4. I converted a VIC20 program that uses Dynamic keyboarding, is user-friendly and demonstrates some simple (yet interesting) pokes. I'm still expanding it and want to add the equivalent pokes for converting VIC, 64 and 128 programs. I'm unsure as to copyright laws but I'll find out where I stand and maybe you could publish it for the Plus/4 owners that enjoy programming.

Keep on doing what you're doing, your humour eclipses the rags over here!
Sincerely, Respectfully, Enthusiastically
Craig Jarratt, Cincinnati, Ohio
P.S. I'd be happy to answer any letter from your readers...

Dear Craig
Lots of CCI Plus/4 readers would love to have your tips and pokes. So why not write them for us. Glad you like the magazine!

Dear C.C.I.
I've finally decided to enter one of your competitions so I thought I'd drop you a line and congratulate you on an excellent magazine. The only factor I find lacking in the magazine is a 'Hints & Tips' type page. Still you can't have your cake and eat it! I would be grateful if you could give me an address to get Rae's book 'Programming the Commodore 64'.

Write on....!!

I've been working on some programs to send in to your page so you'll be hearing from me soon I hope. One more thing before I go, are there any local clubs/user groups in my area, anyone! Please let me know.
Yours sincerely
Glen Collnsen, Merseyside

Dear Glen
No hints and tips?! We may not call them that but we have everything from 'Basic for Beginners' to Machine code and ISAM! As for clubs in your area, try ICPUG or maybe other readers will contact you.

Dear Sir
I wish to use my Commodore 64 computer to study Artificial Intelligence and Expert Systems and to this and wish to use the language "Prolog". I should therefore be grateful if you would inform me of any software company which produces this language for my machine.
Yours faithfully
G. D. Smith, Jersey

Can anyone help?

Dear C.C.I.
For some time now I have been searching in vain for a COBOL compiler for my Commodore 128. I know that a compiler is available because there was a brief list of utilities/software for the 128 in the November edition of CCI.

None of the people in the local computer shops had any real idea as to where I can get one from. I would therefore be very grateful if you could give me details as to how I can obtain a compiler.
Yours faithfully
P. Naylor, Hull

Can anybody help?

Dear C.C.I.
I would like to know if it is at all possible to add extra memory ram-packs to the Commodore C128 to the size of 256K, or 512K, or even up to 1M.

It would make an interesting article for the magazine if it can be done. Also, if that is possible, could you publish a machine code program that could allow me to use the extra memory as a RAM-DISK which is user definable in size.

Thank you for a great magazine. It's the best!
Yours faithfully
N. Jefferys, Kent

In last month's CCI we carried a review of a 128 expansion pack and also a review of Oxford's RAM Disk. Both might be useful to you.

Dear C.C.I.
I have written to you to say that I think your magazine is very good, informative, good quality and inexpensive. Although I would like to comment on your June 1987 edition. In your 'write on' page you had a letter by Peter David Dudley from Surrey. OK maybe the letter was not so brilliant but I found the arrogance of your reply very surprising indeed. Do remember the readers are the most important (no readers no magazine!) I think you have lost one of your readers.

Sorry to have to write you a letter like this but I felt rather strongly about it. Other that than, keep up the excellent work and I look forward to your next edition.
Yours sincerely
Simon R. Davis

Dear Simon
We stand by our answer. Nobody owes a letter writer space. The letter has to make a valid point interestingly — as yours does.

LAZER

When I first bought a Commodore computer, like many many other people, I bought with it the C2N Datasette to load and store my programs. Over the past two years I have built up quite a considerable library of tape based programs. As everyone is aware this method of storage has its drawbacks with the length of time it takes to save and retrieve. It was with that in mind I decided to purchase a disk drive.

All the benefits of disk storage, loading/saving times slashed! I thought I had it made as my new disk based software sped into my beloved computer . . . But wait! . . . what was I to do with all my cherished tape programs? I wanted to transfer them all on to the disk media so it was necessary to purchase a back up caartridge.

There are many different makes of cartridge on the market each with their own particular good points. The main criteria for buying a disk drive for me was SPEED so it was this I was looking for. Thumbing through issues of CCI there it was . . . EVESHAM MICRO's FREEZE FRAME LAZER!

I can't stress how pleased I was when it finally arrived. Here I had two cartridges in one. Firstly it allows 'Freeze Frame' backups to be reloaded without the need for the cartridge to be present in around 70 seconds. Secondly 'LAZER' backups reload with the cartridge in 22.5 seconds. Both times are for a full 64k memory to be loaded.

This remarkable cartridge has two sides to its nature. On power up you are presented with several menu options in the Freeze Frame Mk4. mode.
1. Configure Memory. Allows the Freeze Frame to identify the areas of memory which have been used and will only save these areas otherwise the entire memory will be saved.
2. Reset. This resets back to normal 64 working mode.
3. Load Subsequent Parts. For use with multi-storage programs.
4. Fast Disk Loader. Here the current disk directory is displayed and you only need to use the cursor and press one of the function keys to start loading.
5. Directory. Need I say more?
6. Format. This will format a disk in 20 seconds!
7. File Copy. Easy to use ability to copy and move files up to 248 blocks around at high speed.

The second side of this lethal weapon accesses the LAZER. These files are the most exciting and lightning fast I have ever used. The menu in LAZER modes is the same as before but with one additional option. Convert . . . (No, this is not to convert all CCI readers to LAZER users!) . . . this lets you convert Freeze Frame files to LAZER (USR<) files.

I have of course many favourite programs that I bought on tape. Each and every tape I owned I have successfully transferred to disk. There were a few fussy programs that needed experimenting with but they're all now loaded at LAZER speed. I have the best of both worlds . . . I can have my cake and eat it! So fast that I think Evesham Micros should supply indigestion tablets free with every cartridge sold!

This is a first class professional product which is easy to use. I recommend that if you have the same problem to get backed up LAZER speed.

B.C.

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Feature

It's Showtime Folks!

The 10th Commodore Show Preview

Commodore has again chosen the Novotel in Hammersmith, London as the venue for the 10th Official Commodore Computer Show. Ten years has seen a growth in products from the popular Vic-20 and PET computers to the world best-selling Commodore 64. Now Commodore is aiming for the same success with its new generation of Amiga computers. Needless to say, the Amiga series will be the Show's major attraction.

With good access from bus the Tube, Commodore are assured an influx of enthusiastic visitors as large as the close to 20,000 who attended last year. The show will open on Friday June 12 and close at 4 pm on Sunday June 14. On Friday and Saturday, doors will be open from 10am to 6pm. On the door admission prices will be £3 for adults and £2 for the under-16s. You can save £1 on both those prices by ordering tickets in advance from: Commodore Show Tickets, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

The main attraction on the Commodore stand will be the Amiga A500, which will get its first UK public showing. The A500 is a cut-down version of the original machine which costs just £499 but retains the Amiga's processing power and its celebrated custom chips.

Commodore expects to sell the machine into the home, not just for games playing but also for serious home use. The sub-£500 pricetag should ensure that the power of Amiga technology is put firmly into the hands of the home user. It should mark an upward progression from the immensely successful yet now dated 64. Many of those 64 owners will pour in anxious to get hands on experience of the exciting new machines.

Commodore has announced various Amiga add-ons, all of them being displayed at the Show.

The Show will span two floors with Commodore having a presence on both levels. Commodore will be dividing its stand into two sections. In the upstairs section Commodore Feature Stand will display the complete range of Commodore products. Whilst the Amiga Area will emphasise serious and business use. Another feature of the upper level is the Commodore business and Amiga expo which will illustrate the use of Commodore computers in business. Commodore has gathered together Amiga software developers and invited them to demonstrate their products on the Amiga 2000, the aim being to introduce the Amiga to the serious business and corporate market.

Admittance to this area which is totally separate from the rest of the Show will be limited to those over 18 expressing an interest in serious computing. The rationale behind this restriction is to create a tranquil environment in which exhibitors may demonstrate packages which require somewhat longer to assess than the average entertainment package. Exhibitors in this area include Haba Systems, Microtex, Metacomco, M&R Interfaces, Peartree Computers, Precision Software.

The lower level will feature a Commodore games arcade which will be supported by such well-known software houses as Mastertronic, Martech, etc. Commodore's acceptance within the music industry is well established. Electro Music will be presenting non-stop demonstrations of all that can be achieved with the creativity of the musician blended with the versatility of high technology.

Among the personalities jetting across the Atlantic to attend the Show is the guru of the Commodore world, Jim Butterfield. He will be appearing in association with ICPUG and will be giving visitors the benefit of his unrivalled knowledge of Commodore products.

An additional feature of this event which will enable the user to address the experts in person is the provision of the Commodore Theatre. This facility featuring as it does the use of many thousands of pounds worth of audio visual equipment, will provide sparkling performances from, among many other exhibitors, Commodore UK and Precision Software, together with vigorous 'question and answer' sessions originated by ICPUG.

Music Software

Music lovers will get the chance to play around with The Performer, an 8-track digital recording package for the 64 and 128, from Electro Music Research. It promises to be well worth a try for budding Brian Eno's.

General

Adamsoft will be displaying the acclaimed range of Abacus computer books, including their new "Tricks and Tips with GEOS". They will also be selling a range of languages including Cobol for the 64 and 128, and Superpascal for the 128. For the more serious user Adamsoft has Personal Portfolio Manager and a Technical Analysis System. There's also a mathematics revision program for GCSE exam takers.

Micronet will also be at the show, giving details of membership to its interactive computer users database. Micronet has gradually expanded the service it offers Commodore 64 owners and has a Solely 64 section devoted to them. Micronet also features a Sunday supplement, Celebrity Chatline, downloadable software and much, much more. it has also given Plus/4 owners the chance to get on line with a special offer throuh CCI recently. The Plus/4 offer will be available at the show.

Evesham Micros will be displaying its new Excelarator Plus disk drive for Commodore home computers. An alternative to the 1541 drive, it is slimline in size and a little cheaper at £179.95. Evesham has also produced an outer casing for your old 64 that makes it look like the new and trendy 64C. The company will also be displaying its range of utility software, notably the Freeze Frame and Quickdisc Plus cartridges, and Dolphin DOS a parallel operating system for the 1541 disk drive, which involves fitting two new circuit boards.

CCI will. of course. be there in force with some

CONTINUED-PAGE 26

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10th Official Commodore computer show

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The countdown has started . . . for the show that unveils all that's happening in the exciting world of Commodore computing

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The guru of the Commodore world will be flying to London for the show. This is your chance to meet the man who's the leading authority on the whole CBM range.

10th Official Commodore computer show

10am to 6pm	Friday June 12
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Novotel, Hammersmith, London W6

Send for your advance tickets today . . . With them you can walk past the queues – and SAVE £1 per head off normal prices!

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Admission at door:
£3 (adults), £2 (under 16s)

10th Official Commodore computer show **June 12-14 1987**

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interesting goodies on its stand. We will be running competitions too that will take your breath away including a Microprose Amiga Silent Service Competition that could win you a terrific colour monitor — and who knows?, maybe even the Amiga 500 to go with it!

VERY IMPORTANT P.S. Wonderful hamburgers and Danish pastries can be had in the refreshment area. (Anyway they tell us they're wonderful!).

Some of the Specials to Watch for

Business Software

Precision Software will again be taking a lot of space at this year's show. They will be providing a running demonstration of Superbase Personal, their new database program. Also on display will be a range of Amiga software, including Aegis Animator and Digiview. The full range of Abacus software will also be available.

Visa Software also has its long awaited product for the Amiga — Visawrite. It is a 'desktop Publishing' package. Amiga Visawrite has a variety of fonts and sizes, and can incorporate graphics from packages such as Deluxe Paint. Also on display wil be Visa's hugely successful Visawrite and Visastar for the 64 and 128 machines.

Games Software

Martech will be releasing two new 64 games at the show: Nemesis the Warlock and Pulsator. Nemesis, the Zarjazz 2000AD character, must fight his way through screenfuls of Terminators to find and eventually destroy the evil Torquemada. CCI rated it as one of the best games of the year so far. A little less destructive is Pulsator, a maze game in which you blast your way out of increasingly complex labyrinths. Martech will also be selling their entire range of games — including stalwarts like Eddie Kidd Jump Challenge and Jeff Capes Strongman —at discount show prices.

Anco is specialising on the Amiga this year. Probably the first software house to produce cut-price Amiga software. Anco will be showing three games at just £9.99 each: Space Battle, Phalanx and Demolition. Also for the Amiga at £14.95 will be Emerald Mines and Karate King. Anco's successful range of C16 games will be on display but there'll be nothing for the 64. Anco is obviously pinning its hoped squarely on the Amiga as the ultimate gamers' machine.

Tynesoft are recognised as one of the leading producers of games for the C16. They will be showing their large range of titles as well as a new ghost-zapping arcade game, Phantom, which has just received the "Awesome" accolade from CCI. Four buildings are riddled with ghosts and spooky nasties. Your job is to exorcise them with your wits and your high-powered laser.

Robtek will be displaying their Hollywood Poker game for the 64, as well as their range of 64 and 16 utilities.

Utility Software

Datel Electronics has a huge range of utilities for the 64 and 128. Pride of place on its stand will go to the Action Replay Mark 3 backup cartridge. At £30 it comes with an impressive range of features such as picture save, sprite monitor, sprite killer, turbo and data compacting system. Datel also produce Toolkit IV, a budget-priced disk utility for the 1541, and the Blazing Paddles lightpen system. They also sell replacement ROM chips for both the 64 kernel and the MPS 801 printer, giving it true descenders.

Trilogic will be displaying its full range of utilities for the 64 and 128. Their best-selling products is the Expert cartridge which contains no less than eight facilities for the experienced user. Not only a tape and disk backup system, the Expert lets gamers brreak into code, enter cheats and 'Pokes, and grab hi-res screens. Apart from Expert, Trilogic will be showing a new device called Sound Splitter. Designed for the 64/128 it gives a two-channel stereo effect from the computer's audio output when connected to a hi-fi or stereo. Reverb adds to the depth and realism. Also on display will be Phantom, a new disk turbo, claimed to give a 30-40 times speed increase.

Some of the Exhibitors you'll see at the Show —

MDR Interfaces
Tri Computers
Peartree Computers
Haba Systems
Microhex
Metacomco
Overbase Ltd
Database Publications
Advanced Memory Systems
Evesham Micros Centre
Micronet
Datel Electronics
Logic Sales
Calisto Computers
R & AJ Preston
Twillstar Computers
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Precision Software
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Cavendish Computer Centre
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Trybridge
Robtek
Argus Specialist Publishing
Trilogic
JB Software
Martech
Electro Music Research
Shekhana Computer Services
Vanguard Leisure
Zonefour
Home & Business
Direct Disc Supplies
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6 powerful home and business programs in just ONE package – at a price that simply can't be matched!

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I enclose cheque made payable to Database Software, or debit my Access/Visa card:

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Stop Press! What's so special about The Amiga, The Mac, The Atari St., Windows and Gem?

It's no surprise that nearly all new 16 bit 'state of the art' micros now come with a Mouse and Wimp environment (Windows, Icons, Menus and Pointers) as standard.

With the COMMODORE 64 you already own one of the classic micros and by simply adding the 'AMX Mouse' and 'Stop Press' you can achieve the same ease of use, freedom and versatility of much more sophisticated computers.

The AMX Mouse with Desktop Publishing software – it's what you and your COMMODORE micro have been missing!

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AMX MOUSE PACKAGE 5¼" DISC £69.95

There's not much joy in a joystick and keyboards can be all fingers and thumbs. Acclaimed by the press as 'the best input device', already over 50,000 micro users have adopted an AMX Mouse. The AMX Mouse combined with Stop Press puts you right at the heart of the desktop publishing revolution.

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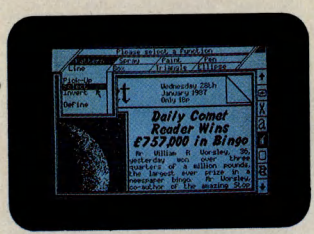
Provides easy access to all the 'Stop Press' modes. A comprehensive and versatile filing system that makes management a joy! Powerful graphic and full proportional text options enable you to give your documents the professional look with the minimum of effort. Allows windowing, copying, re-scaling, and all the printer options at the touch of a button.



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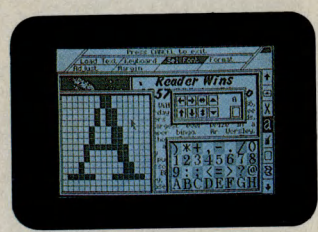
Allow your creativity to really come to the fore. Use the built-in designer to create your own fonts or change any of the 50 fonts supplied. You can also design your own patterns to use with the amazing spray and paint options.



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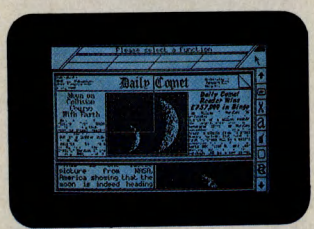
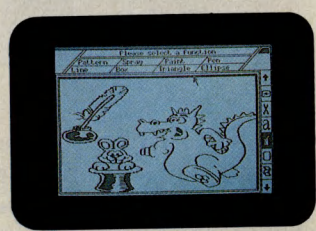


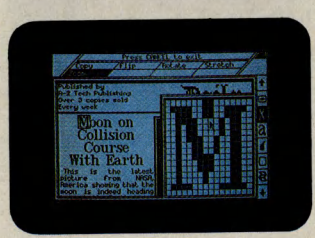
CLIP ART

Over 150K of clip-art is supplied with 'Stop Press' covering a wide variety of subjects including sport, music, transport, cartoons, technology, and a host of miscellaneous items. Alternatively areas of your page can be "cut" to disc, building into your own unique library of clip-art. Cut-outs can be "pasted" into any page, at any position, preventing the need to re-do headers and footers, etc.



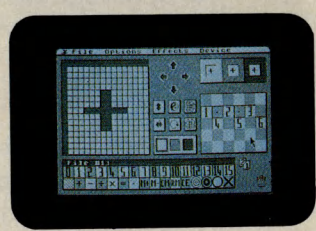
FULL PIXEL EDITING

The most advanced pixel editor available on the Commodore 64 is provided with stop press. Any area on the screen can be brought into close-up and altered. Intelligent continual pixel 'set/unset' and real time scroll, while zoomed-in, make this an extremely powerful editing tool.



MOUSE CONTROL SYSTEM + ICON DESIGNER

Write your own mouse driven programs using the powerful basic extentions. The Mouse control system adds over 30 commands to Basic, including Windows, Icons, Menus, Pointers, line drawing, memory load and save. The Icon designer is a sophisticated Icon editing program developed entirely using the extra commands provided by the Mouse control system and shows the high quality of program that can be achieved using this system.



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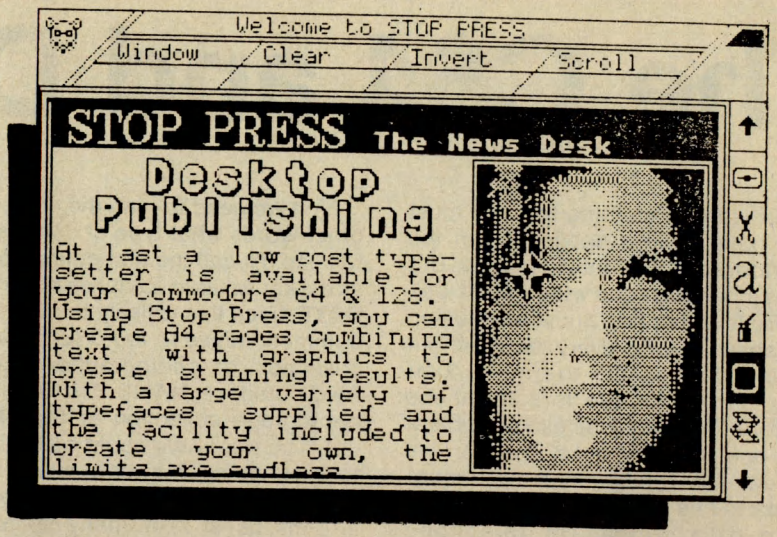
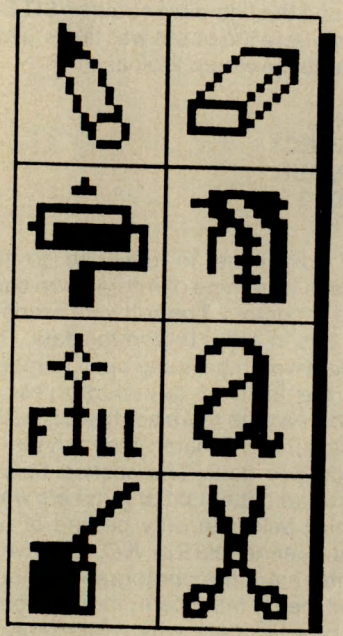
AMX Mouse

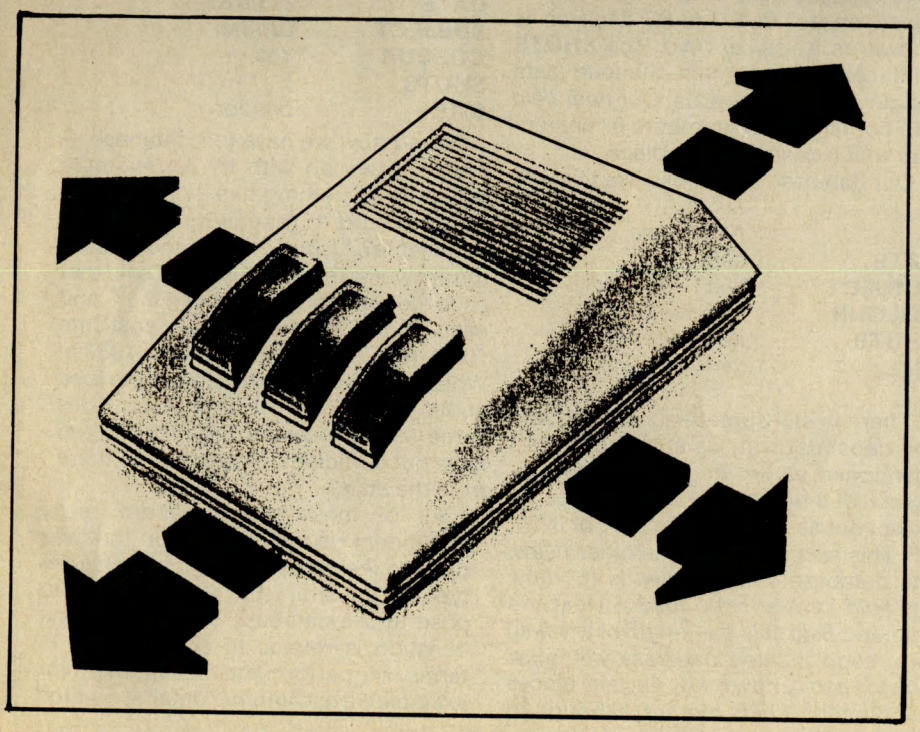

Welcome to STOP PRESS
Window
Clear
Invert
Scroll
STOP PRESS The News Desk
Desktop Publishing
At last a low cost typesetter is available for your Commodore 64 & 128. Using Stop Press, you can create A4 pages combining text with graphics to create stunning results. With a large variety of typefaces supplied and the facility included to create your own, the limits are endless

These days, most new PCs and even some home computers come with a mouse included. Why? Because the mouse with its smoothness of operation in many areas has distinct advantages over other control devices such as joysticks. True, frenetic jerking action necessary in fast arcade style games is not what they are designed for. But in more delicate functions, the drawing of lines, the moving of blocks of text, etc., the simple mouse action will generally prove more accurate. In the view of many, the mouse gives a more comfortable and positive feel and so improves confidence for computer users.

There are already a variety of 'mice' available for Commodore 64 owners, and this month we take a look at an interesting new addition to the market — the AMX mouse. This mouse is about 9cm long by 6cm wide with three independent buttons. It plugs into the joystick port. The AMX Mouse has a functional but attractive appearance — matt surface is beige making it look elegant and expensive. We found it easy and pleasant to use. So easy in fact that although it has a very solid 32 page instructional booklet for a manual, the manual was hardly necessary because once you start to put it into action the requirements become very obvious and the hand falls naturally into its correct use. It works with a cross hair rifle sight device. This enables you to line up and create sections of whatever design you are making without any need for previous expertise. You just 'aim' the point at which the lines cross and press the left button. Keeping the left button pressed down is like holding a pencil. You can then move the cross hairs to another point on the screen and the design appears between the two points.



The other two buttons allow you to change options of which there are many. The Stop Press software is designed to work in conjunction with the mouse and a variety of printers. It consists of an icon driven art program, sporting the usual features: box, ellipse, a number of redefinable fills, and some useful 'cuts and paste' commands including enlargement, reduction, reflection and zooming. Selecting the letter icon, will open options allowing you to alter the characters, and type our your text. Stop Press uses only black and white, no colours, but this is quite enough for most printers.



Unlike some mice, the AMX mouse is very accurate, which makes it possible to produce some rather attractive documents. Learning to use it will trouble no-one and it will complement any other control device you own. The Stop Press utility is an interesting and useful addition and will be exceptionally useful to anyone who does not own an art package or wants to find out how to use one. All in all, if you're thinking of buying a mouse, or want a publishing program, the AMX mouse package is well worth a look.

Price: £69.95 (disk).

Inside Info

The C64 and Databases

After word processing the next most popular serious application of the Commodore 64 is in database work. But what is a *database* and what does it look like? Believe it or not, but you are using a database nearly every day without realising it! Probably the most commonly used *database* is a telephone directory. If we analyse exactly what a telephone directory looks like then we can see all of the elements or component parts of a *database*. Here is a brief listing of a typical UK telephone directory:—

Jones C.	23 Station Road, Sittingbourne.	Sittingbourne 98765
Jones D.E.	13 Harbour Way, Faversham.	Faversham 12345
Jones Z. Mrs	44 Acacia Avenue, Rainham.	Medway 112233
June A. Miss	98 Western Crescent, Canterbury.	Canterbury 998877

You may not realise it, but every aspect of each line is important. By this I mean that commas, fullstops and spaces are significant to this database. For example if there were no space then the first line would look like this:—

JonesC.23StationRoad,Sittingbourne.Sittingbourne98765

Not very readable is it? Therefore a database must have some kind of order or organisation to the information it contains. In the case of a telephone directory we are specifically looking for one piece of information — the telephone number of the person we want to speak to. To achieve this we need to know the name of this person before we can search the directory. The layout of the directory helps us in this search since it is arranged alphabetically on the names. This is an important point — since the name is the *key* to the *index* (pre-arranged list) of names. Find the name and in theory you should find the number you want. The addresses are there to separate between identical names. Note that the addresses are not arranged in any order, but imagine the problems if the telephone directory was *indexed* on addresses and not names.

Returning to our directory, if we give meaningful labels to the columns, viz:—

Name	*Initial*	*Title*	*Address1,*	*Address2*	*Number*
Jones	Z.	Mrs	44 Acacia Avenue,	Rainham.	Medway 112233

In simple terms, a database is a collection of data that is arranged in some type of an order. Thus a database could be a library book catalogue, a births and deaths column in your newspaper, a railway timetable, even the humble board at your garage displaying the prices of fuel.

First we need to plan the contents, in other words what type of data we want to keep. I'll call the first column or *field* as it is known as in database terminology **DATE** since this is likely to be the most common choice to *index* for example a collection of photographs. The next *field* could be **NAME** if it is a family photograph collection or **SUBJECT** if not. The third *field* could be **COLOUR**, to distinguish between monochrome and colour. The penultimate *field* informs us of how many shots were taken and the final *field* could be **SITE** to inform where the photo was taken. Thus our database would look like this:—

DATE
SUBJECT
COLOUR
SHOTS
SITE

We now have to describe to the database what type of information each *field* is to contain. The software needs to know this in order to *sort* the data. Our first *field* would be made up of numbers — in the form of *day-month-year* or *month-year*, the more sophisticated the database, the greater the options to arrange this data. The second *field* is made up of either text or numbers while the third field can only be one of two things — either *YES* or *NO*. We have to assume that if the photograph is not in colour then it must be in monochrome. This type of *field* where the reply is based on a *TRUE/FALSE* decision is known as a *logical field*. The **SHOTS** field can only contain numeric data ranging from 1 upwards. Our final *field* can contain either numbers or characters which describes the place.

Our database now looks like this:—

	Field Type
DATE	date
SUBJECT	text
COLOUR	logical
SHOTS	numeric
SITE	text

There is still something missing and this depends on the database software. I mentioned earlier about the layout or *format* of the *date field* where this could be set out as 14-3-1987 or 3-87 or 3-14-87. This also applies to the other *fields*, the database software needs to know the *field format*. In the case of a text and numeric *field*, it is the length of the *field* — a sophisticated database will allow you to specify how many decimal places the numeric *fields* require, although in this case the answer would be zero. Adding this information to our database would give us the following *format*:—

	Field Type	*Field Format*
DATE	date	dd-mm-yy
SUBJECT	text	40 characters
COLOUR	logical	not applicable
SHOTS	numeric	1 number, no decimals
SITE	text	20 characters

Some typical entries would look like this:—

DATE	14.03.87
SUBJECT	Wife
SHOTS	1
SITE	Sittingbourne

DATE	14.03.87
SUBJECT	Mother
COLOUR	No
SHOTS	2
SITE	Canterbury

DATE	09.03.87
SUBJECT	Mistress
COLOUR	Yes
SHOTS	6
SITE	Chicago

DATE	27.06.87
SUBJECT	Brother
COLOUR	Yes
SHOTS	1
SITE	London

OK, so now we have our database — what can we do with it? An example would be something like — how many pictures did I take when I wasin Whitstable? Using the basic database the answer is three, but what if I said that each colour shot cost me £0.87 and each monochrome picture cost me £0.29, how much did I spend in 1987 in Whitstable? So you start to get the idea about a database — that it provides some useful answers PROVIDED you have put sufficient information in there from the start.

All of these questions are really dependent on the information that was put into the database originally plus the type of question that you are able to pose to the database itself — this last question is related to softare itself in terms of performance. Suppose, for example we had another database which

was related to spending in the photographic shop:—

	Field Type
DATE	date
DESCRIPTION	text
REFERENCE	numeric
PLACE	text
TEL	numeric

Field Format
dd-mm-yy
10 characters
4 characters, no decimals
20 characters
9 characters, no decimals

Using the information placed in the above database, it should be possible to trace back something such as a defective *shot* on our piece of film, or checking to make certain that the film is not *life-expired.*

It is all very well to plan a database so complex and containing some all-embracing data structures but remember that it has all got to be typed in. The other important point to consider is the size of the disk or any storage media. For instance our initial database will occupy:—

	Field Type
DATE	date
DESCRIPTION	text
REFERENCE	numeric
PLACE	text
TEL	numeric

Each *record* within the database is going to cost say 50 bytes, which equates to 3,400 *records* on a 1541 disk. I mentioned a 1541 disk and it should be appreciated that to operate an effective database, a disk drive is essential. Tape is too restrictive and slow for all but the simplest of databases.

In the Commodore 64 world the leading database software is probably **SUPERBASE** and to cover all the features this product offers would require several more pages. There are not many things you cannot do with **SUPERBASE** but possibly the most powerful feature is its programming abilities. It allows the user access to most of the Commodore 64 BASIC language keywords together with some keywords which are specific to **SUPERBASE** itself. The other feature that makes this software outstanding are the various levels that a user can enter at —a *starter* level and a *standard* level. You can upgrade to the *standard* level at a later date at nominal cost. There is a book published which deals specifically with **SUPERBASE** and how to get the best from it. Intending users would be well advised to obtain this book for study (SUPERBASE The Book, Hunt Dr B. ISBN 1-85231-000-6).

Some other software products which contain a database function are **MINI OFFICE II** and **VIZASTAR.** The only other true database software other than **SUPERBASE** is **MICRO-MAGPIE.** This relies heavily on a menu approach and is very easy to use, although the range of available functions is still no match for **SUPERBASE.** The question of which database to buy is very much a case of carefully deciding the size of your database and what type of manipulations you want to perform. Remember, the secret of successful database operation is very careful design **before** you start the data-entry phase. It is both frustrating and time-wasting to find after you have entered several hundred *records* that a certain *field* is missing or you cannot perform a certain search. Databases are powerful tools and can be used to reveal some interesting facts which would be difficult to discover merely by a quick perusal of lists. As always, check with your retailer that the particular software will perform to your requirement before purchase.

B.D.

Can I have my tape back please?

Excelerator + Evesham Micros £159.95

"I can't see the point of getting a disk drive... I can do anything a disk will do withmy phase modulated shift enhanced fusion powered super-duper turbo tape gizmo and a tape recorder!" How many times have you heard or read something along those lines? I'm sure it's a rumour spread around by some unscrupulous compact cassette manufacturer. In the real world of professional software you can't beat the flexibility and power of a disk drive. So why the dissension in the ranks? Commodore's now infamous 1541 disc drive may well have something to do with it. For those of you who haven't heard the tales of woe (Probably some typical comments: "The fast-loader tape version loads faster!", "I can use mine as a toaster, it gets so hot", "No the tappets haven't gone, it always makes that noise", "I had to have an extension built when I bought the second drive", "Zzzzzzzzzz" (probably waiting for Flight Simulation to load). Etc. etc.

Slim and cool

At last, there's a feasible alternative to the 1541... The EXCELERATOR +, a compatible disk drive from Evesham Micros. The most obvious difference between the two units is their size. The Excelerator + being a trim 268 x 150 x 47.5mm against the 1541's mammoth 370 x 200 x 92mm. That's **257%** larger. One criticism often levelled at the 1541 is the build up of heat it experiences after being on for any length of time. To prevent the same problem from occurring in the Excelerator + the power supply is housed separately. For those of you heavily into statistics, even with the power supply (120 x 78 x 60mm) included in the calculations the 1541 is still a hefty **198%** larger. Two other visual differences are the disk load/release lever which is more akin to 1541's more familiar separate red and green. The rear of the Excelerator + is inhabited by much the same as the 1541: 2 x serial ports, a Power switch and a socket for the power supply. Turning the unit upside down reveals two small switches (dip) which enable the user to change the unit's device number without have to open the case and cutting PCB tracks (possibly invalidating the warranty) as on the 1541.

Compatible?

A number of companies have brought out Commodore 'compatible' disk drives over the last few years all with differing degrees of success. So why is it so difficult to ensure FULL compatibility? The main problem is that the copyright of the code within the 1541 that makes up the DOS (disk operating system) belongs to Commodore. Therefore, the code to do the same functions in a compatible machine cannot be exactly the same without violating that copyright. To add to the problem many software houses make use of copy protection routines which directly access the 1541's memory and machine code routines. As the Excelerator +'s are not exactly identical some odd effects can occur often resulting in the disk drive locking up or the computer crashing. It is therefore unlikely that anyone will ever actually achieve total compatibility.

The Excelerator + does fare better than several other clones I have tried in the past. All of the functions available on the 1541 were present including sequential, relative, and random filing, even the command to toggle between C-64 and Vic-20 speed. The only problem I encountered was when trying to load a protected programme with an old disk turbo routine, both of which make use of the drive's internal routines. The program loaded without any problems when I disabled the turbo routine.

Excellent Excelerator

What a shame the Excelerator + didn't come out a couple of years ago. It would have made my C-64 computing days so much more pleasant. It's quiet, compact, reliable and doesn't cook disks. With the Amiga 500 due to become available in June and the C-64 beginning to show its age it may have come too late for many. However, if you are still in the market for a C-64 and would like the POWER of a disk drive then the Excelerator + could well be the one for you.

I.B.

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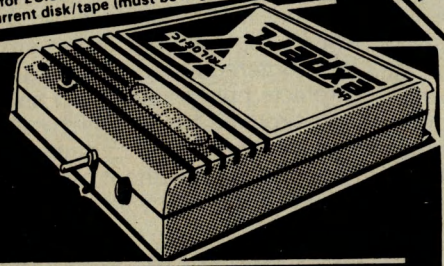

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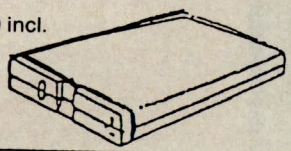

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The AMI

CCI gets its hands on Commodore's world beater

The A500 is aimed squarely at the new generation of 16-bit recreational computers and I couldn't help but think after examining it that there must be sme worried people in Railway Terrace, the unglamorous HQ of ATARI UK.

Athough ATARI were first to establish the market for advanced computers, there is little doubt that in the UK at least, they failed to achieve the level of conversion from existing home computer users and fell far short of their sales targets for new entrants to home computing. The A500 is designed to succeed where the ATARI ST family failed and given the range of capabilities coupled with superior software designed to take full advantage of these capabilities, there seems little doubt that the A500 will outperform the ATARI machines by a comfortable margin. It would seem judging by the huge number of phone calls and letters received by CCI about the A500, that there are many potential buyers for this exciting hardware. But just how good is it?

The first impression that A500 makes upon the users is the similarity in size and shape to the Commodore 128. The A500 is a keyboard/console computer — unlike the A1000 and A2000 which follow the conventional pc three box configuration, with everything inside the console with the exception of the power supply unit. This is a hefty transformer/rectifier encased in plastic and designed to be placed out of sight as it has a generous length of cables. My only reservations here revolve around realiability — the units for earlier Commodore machines have at times enjoyed an unenviable reputation for failure and have kept many a dealer profitably happy repairing them.

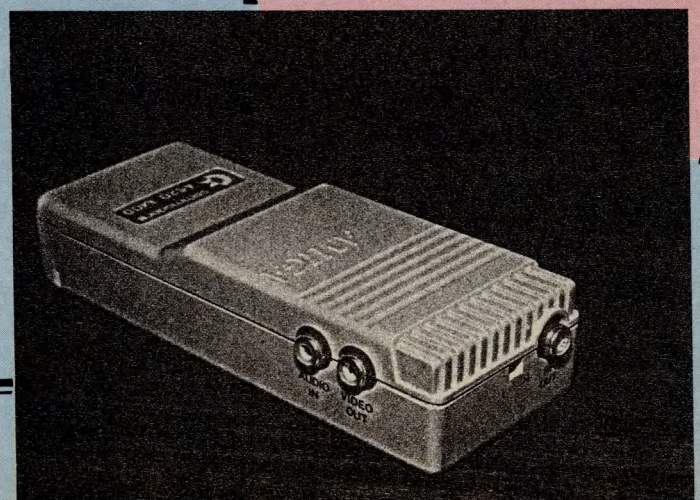
The disk drive for the A500 is to the same format as the A1000 and uses 880k 3.5 0-inch disks. This is located on the right-hand side of the A500 and disk drive activity is shown by means of a green LED on the top of the keyboard, alongside the red LED indicating power on/off. The A500 has the system software (KICKSTART) placed in ROM (Read-Only-Memory) and this saves the user a little time as the opening display prompts for the WORKBENCH disk. The system software is version 1.2 which directly supports a RAM disk and useful utilities such as the CLI (Command Line Interpreter) can be copied into RAM and used without further recourse to the WORKBENCH disk.

The keyboard of the A500 is identical to that of its bigger brother, the A2000 and conforms closely to the IBM-PC standard keyboard. So much so, that some of the keys are inscribed with identical commands. Unfortunately, this keyboard is not quite the same as that used on the A1000 and hopefully this will not cause any serious problems with with current software. A major advantage all of the AMIGA keybaords have are that they are a 'soft keyboard' — that is, they can be configured for national character sets under software control. Another point I noticed about the new keyboard was the different 'feel' of the keys themselves — they seemed less positive and noisier than the A1000 keyboards, although this could be due to the fact that I am used to the A1000 keyboard.

The size of the available RAM on the

The 500 and TV

Oneof the main accusations levelled at the 500 is that for a home machine with the cost of a colour monitor, it is likely to shoot out of most people's reach. But Commodore have thought of that. They are releasing a modulator that will let you use your ordinary TV as a colour monitor. The RF Moduator will be on sale at £24.99 in the U.K. CCI has obtained this exclusive photograph and we are reliably informed that although it must obviously provide a somewhat lesser quality picture than a dedicated monitor, it is still crisp enough to read the 80 column format that the Amiga employs. Looks like being very popular.



GA A500

A500 is 512k and the good news is that this can be expanded INTERNALLY to 1.0 megabyte. I was able to see a peripheral board from Commodore which not only contains the additional 512k RAM using 41256 IC's but also a real-time clock, something the A1000 sadly lacks. This clock and RAM board appear to be designed only to be fitted to A500 — unless you are skilled in hardware matters, and representatives of Commodore UK indicated a retail price of £99.00 plus VAT. This seems to be a realistic price and I for one, would not be unhappy to pay this.

The various ports on the A500 were both numerous and comprehensive. For instance, there are no less than four different display outputs — RGB(A), RGB(I), Composite Video and RF modulated. This means that the A500 can be used with virtually any monochrome monitor, a colour television, the Com modore 1701 colour monitor, the Commodore 1081 colour monitor. RGB(A) undoubtedly gives the best display, but it is no secret that high-resolution colour RGB(A) monitors are not cheap. It rather depends on what use you intend to make of the A500. If you intend it purely to play games on, then in all probability a colour television will suffice. Commodore is bringing out an RF modulator at an extremely helpful price of around £10. Maybe they could even bundle it with the A500. Alternatively if you intend to use the A500 for word processing a monochrome costing less than £100.00 will suffice. Graphics applications demand the highest quality resolution and colour range and for this type of work and RGB(A) monitor is essential. The answer is to decide before you buy a monitor.

The remaining ports are a true RS-232 serial port, a Centronics parallel port, a stereo sound port and expansion port. Commodore have taken the opportunity to make a slight rearrangement on the parallel port to make this completely IBM-PC compatible. The A1000 parallel had one pin which, if connected wrongly could seriously damage both the computer and peripheral. The new standard on the A500 removes this danger and it is now possible to specify and use an IBM-PC parallel printer cable for this port.

The expansion port is located on the left-hand side of the console and I was rather surprised that this employs the 86-pin standard of the A1000 rather than the 100-pin standard of the A2000. No doubt suppliers of hardware peripherals will be rather annoyed to find another example of Commodore's indecision because though this port theoretically will take A1000 peripherals such as RAM expansion boars, these will not physically fit because of the difference in the form factor.

With the A500 comes an excellent tutorial program 'The Very First'. It makes the whole system seem entirely accessible even to total computer novices.

'The Very First' demonstrates exactly how simple the 500 is to use and how well it can alloy you to achieve amazing results. The wide sense the machine gives is that you are handling the best computer in the world — at least in its class. It has easily the best graphics which will make it best for games. With all the exciting software arriving, there is no doubt that it has got to be considered the best machine for anyone wanting home productivity uses. And the 2000, with its PC element and AMIGA advantages, could well become regarded as the best for business, too.

Overall, my impressions of the AMIGA A500 were one of a solidly built machine with a great potential because of the powerful facilities it offers the user and programmer. Only time alone will tell just how great this potential is, but I for one remain convinced that there is a golden future ahead for Commodore with this machine. I just feel so sorry for all those users who couldn't wait and went out and bought an ATARI ST.

A500!

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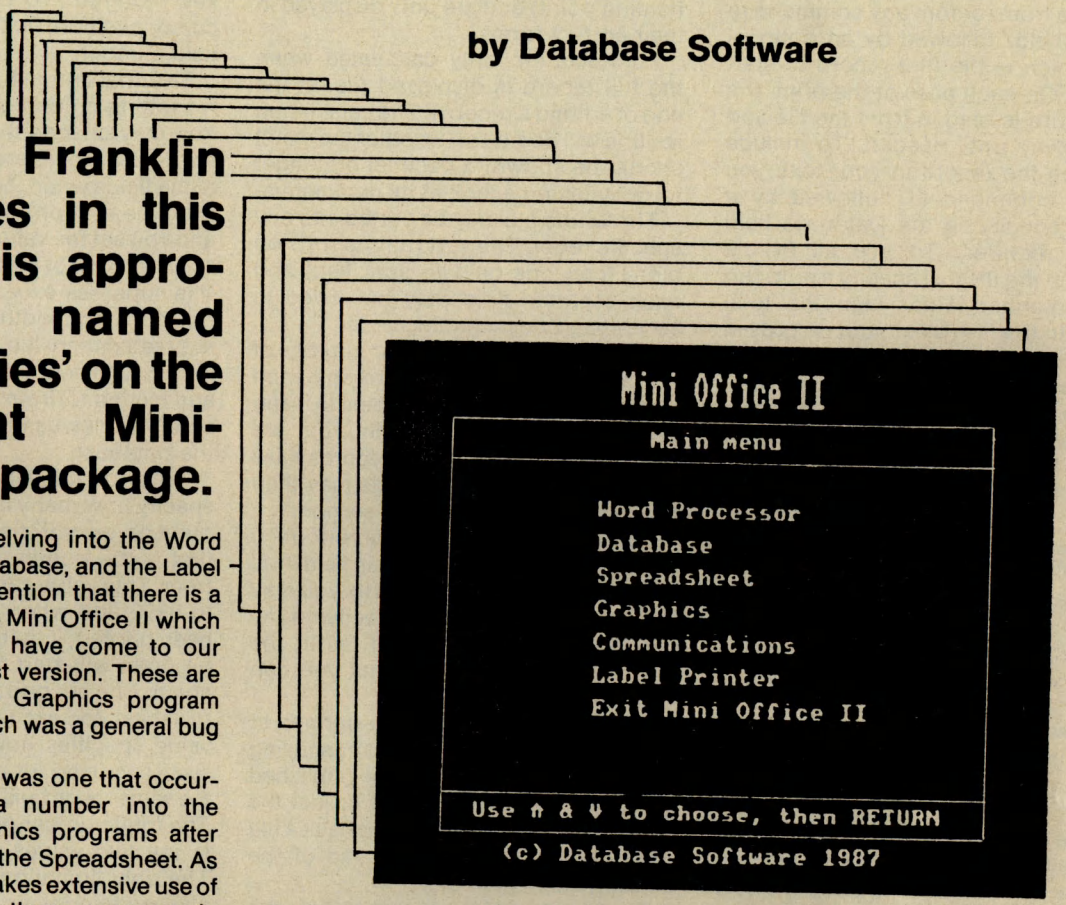
Feature

Mini Office II

by Database Software



Richard Franklin continues in this article his appropriately named 'mini-series' on the important Mini-Office II package.

Before I start delving into the Word Processor, Database, and the Label Printer, I should mention that there is a new release of C64 Mini Office II which cures bugs which have come to our attention in the first version. These are all to do with the Graphics program except for one which was a general bug in the disk version.

The general bug was one that occurred by entering a number into the Database or Graphics programs after having been using the Spreadsheet. As the Spreadsheet makes extensive use of Zero page, entering these programs via the Main disk menu and then entering any Floating point number in the Edit Data sections of these programs caused the machine to hang with no recourse except switching the machine off and then back on again. The bug was cured by resetting pages Zero and Two on entry to the Main menu.

There were numerous bugs in the Graphics program including a problem with dumping the display to MPS803 and 1000 printers. These have now been solved. Also saving and loading displays was only available to and from the disk drive. The new version allows saving/loading to tape as well.

Word Processor

The word processor works in forty column mode (a limitation of the computer) and includes word wrap so that words are not split at the end of a line. You do not have to worry about the format of the text whilst entering it as the text is only formatted when output to the printer (Not What You See Is What You Get).

The editing of the text is simplicity itself. You just type your text in with carriage returns only at the end of each paragraph. The input cursor always remains on a line in the middle of the screen and when moving up or down a line the whole screen of text is scrolled. This means that you can always see at least ten lines of text before and after where you are editing. The whole text is flanked by 'START' and 'END' markers to show the bounds of your text.

Some of the more important formatting options such as the position of margins, header and footer positions, tabs, etc. can be set from menus in the print options section. All of the commands available from the menus and many more are also available by embedding them into the text so that you may change the format partway through printing. These 'embedded commands' consist of a two character name followed by whatever parameters are required by that command.

The Embedded commands are flanked by a start marker (F5), and an end marker (F7) or carriage return (or start marker for next command) and are highlighted when editing. These commands include such functions as defining headers and footers, including a text file stored on disk or tape at that point, defining a Database file to read for mailmerging, and placing a field from the Database file into the text.

There are no commands for changing the font in which the text will be printed. This is due to the different printers available. In place of that command, there is a command that allows you to send raw characters to the printer to change such options (examine your printer manual to find out what your printer can do). The only exception to that rule is the command 'CS' which allows you to specify the size of the characters printed. This command allows double width (MPS and Epson compatibles) and double height (Epson compatibles only). With an Epson printer you can actually print characters in double height and double width.

will not appear. The best way to deal with this is to define the header and footer as the first commands in the text.

MailMerging is made very simple with Mini Office II. All you need to do is specify the name of the Database file to read data from (before any command to insert a field) followed by an optional value which is the first record to start reading. On each pass of the print, the next record is read in from the file and stored away until needed. To include data from the record in your text, you use the command FL followed by a number specifying the Database field number required. To use all of the records in the file just specify a print run with a number larger than the total records in the file (Maximum records in any Database file is 2048). The print run will stop automatically when the Database file is exhausted.

Finally, the text may be 'printed' to a disk file for such things as transmitting through a modem.

Database

The Database allows you to keep records in the same manner as a card index with the advantage of being able to search them for specific items and sort them into any order you want. Each database file can consist of up to 20 fields that make up the record.

The fields are defined by use of the Edit Structure section and each field consists of a name (18 characters long), the type (Alpha, Decimal, Date, Integer, Formula, or Blank) and whether the field can remain empty after editing each record. In addition you can input a number for the size of the Alpha field (up to 60 characters wide) and enter a simple formula for the formula field. The formula field consists of two fields with one operation to be performed upon them (+-*/).

The edit data section allows you to edit existing records or add new records if there is room. You can also mark individual records for other sections of the Database. The display shows the first ten characters of the field name followed by a divider line and then the actual record information. The astute among you will have realised that that leaves only 29 character positions left across the screen. This area is quite sufficient for all field types with the exception of the alpha fields that can go up to 60 characters wide. To counter this problem, when editing, if the cursor tries to go past the end of the record information area, and there is more data to be input, the data area of the screen will scroll along with the cursor. The screen will also scroll the other way so that the 29 characters act as a windo onto the maximum 60 characters available.

Dates are input in the form dd/mm/yy and the date is validated to ensure that there are no illegal dates (including leap years, with the exception of 00/00/00). Decimal and Integer numbers are stored in exactly the same format (packed floating point) and are only displayed in their correct forms.

Formulas are only calculated when the full record is displayed (i.e. at the end of editing a record). The calculation routine will decide on whether the result should be shown in decimal or integer form by taking a look at its parameters.

The whole file may be sorted into any specific order. The sort routine sorts on more than one field (if specified) and each separate field may be sorted in ascending or descending order.

You may search for any occurrence of specified parts of the record and each match has a marker placed next to it and at the end of the search you are informed as to how many records have been marked. These records may then be scanned in the edit data section.

Simple calculations may be performed that allow you to total a certain field in all or jut the marked records. Also, you may alter numerical fields by specifying the operation to be performed (as in the formula) and a constant that you can enter from the keyboard.

Saving and loading are performed to either tape or disk with the former using a version of the turbo routine published last year. You may save all or just the marked records and can load back a file or append a file onto the end of the existing file in memory.

The final major operation of the Database program is printing out the records. The records may be printed vertically (1 field per line) or horizontally (1 record per line). In both instances, you specify which fields to print and whether the field names are to be printed as well. A more flexible print can be obtained from the Label Printer.

Label Printer

This program allows you to use Database records for creating multiple Labels. The program can also be used independently for printing just text that you enter into the label format.

The first think to consider is the actual editing of the Label format. Up to 7 labels can be printed per line (the more labels, the narrower they are). Other settings you can change are: Page width (10-255), Label depth (1-255), and whether excess spaces are suppressed. The tab positions of the labels across the page can all be set independently (defaults set on number across page or page width changes) provided the changed tab value is greater than the setting of the previous tab and lower than the setting of the next tab (or page width).

Editing the actual record is very easy. When you have chosen the format settings, entering the Edit Label option will shown an outlined area. Just enter the text into the area by moving the cursor to the position and pressing the key required. To place a field at the cursor position, first key '#' and then the field number.

The final option for editing the label is for setting cutoff points to Alpha fields. You may change these values (initially the actual alpha length) to chop off the alpha fields when they are displayed, for example an Alpha field has a width of 30 and you set the value to 15, only the first 15 characters of that field will be printed. The suppress excess spaces will override the Alpha width settings if the width is greater than the spaces suppressed length. The defined format can be saved and loaded to/from disk or tape and the tape routines use the same turbo as in the Database.

To print the labels, you must first specify how many labels you want. This number is controlled by two values, the first is the number of records to print from. This value can be anything from 0 to 9999 and when the last record has been printed, if there are more to do the program will start from the first record again. The second value is the number of labels for each record (1-99). This value specifies how many times each record is used for a label (all labels for the same record will be printed together). The total number of labels to be printed is the two values multiplied together. The only limitation is that you are not allowed to print more than 32,767 labels in one go.

The only other thing to do before printing (or test printing) is to define any printer codes that you want sent before printing. You can specify a maximum of 128 values that will be sent to the printer before the labels are printed. These values can set such things as Condensed mode etc. (if your printer can handle them).

There are two actual printing options, print or test print. Test print will just print out two rows of labels displaying '*' characters wherever data from a field should be placed there. Print labels will go ahead and print the labels as defined.

During printing, a total of how many labels remains to be printed will be displayed on the screen. At any time you may abort by pressing the STOP key.

Next month will see the conclusion of these articles on Mini Office II with descriptions of the Spreadsheet and the Graphics programs.

FIGHTING WORDS

The Jeff Minter Page

This month the ever-surprising Jeff Minter gives us a little sci-fi. But, strange, there is something rather familiar about the story . . .

Little Computer People

Two beings sat in front of a computer display. The display took the form of a large cube, the outlines of which shimmered with a ghostly blue light. Within the cube was the image of a planet, greeny-blue in colour, whorled with cloud-patterns. In places between the banks of cloud, the outlines of land-masses could be glimpsed. On the nightside, clusters of tiny lights implied the existence of cities, and therefore intelligent life, upon the surface of the planet.

"How goes the game?", asked the older of the two beings. His form was too weird for a human mind to comprehend, and so, indeed, was his name, so for the purpose of this story we shall call him Kevin. (He had just popped 'round to his mate's dimension to pick him up on the way to the pub. You will perhaps gain a little more comprehension of the type of being that he was if I tell you that he had a Mark 1 StarKortina with 'Kevin and Tracey' across the windscreen and a pair of furry tesseracts hanging from the rear-view mirror).

"Not too well. I think I shall lose this time", replied the other being, who was quite unlike Kevin. His name was Jovah, and he'd been running this game for the last three years, and was considerably upset at the prospect of losing after all this time. Jovah was a computer-freak, and he possessed many large and powerful machines. He planned to go to Multiversity to study computing the following year, if he passed his alpha-levels, which he should do with ease, for all his spare time was spent studying computers.

"So what is this silly game you've been running all this time? What sort of a game is it that takes you three years to play? What's the idea? Are you sure you wouldn't rather jack it in and come down the pub for a few pints of GalactiLager?". (You understand that I am simplifying many of the concepts involved here. Going down the pub in a thirteen-dimensional multiverse would be perfectly incomprehensible to a four-dimensional being. Suffice to say that the essence of such pub-going is what I intend to imply).

"It's a life-simulator. Sort of a strategy game really", said Jovah. He began to explain to Kevin how the simulation worked.

"I started by creating a four-dimensional simulacra of a simplified Universe. It's quite easy: you first set up a set of arbitrary laws governing the behaviour of the simulated matter you're dealing with, then you introduce a seed and detonate it. If you've set up the laws correctly, after a few million T-states you find that the matter coalesces into a closed simulated Universe. Takes quite a bit of memory though; this one used up nearly half the memory of my Megatari system.

"Once the Universe had achieved a reasonably steady state, I picked a decent plant — the one you see displayed here — and introduced a life-algorythm of my own design. Before long, you get little simulated life-forms all over the planet.

"The object of the game is to fill your simulated Universe with such life-forms. You hope that on your seed-planet, one of the life-forms will become dominant, discover the means to escape from the planet, and spread throughout the simulated Universe.

"It all seemed to be going so well to start with. True to my expectations, a dominant form evolved and grew strong. It was then I realised that I must have had a glitch in my fundamental life-algorythm, because the dominant form behaved in a most irrational way.

"True, they became strong — but their strength has turned inward, and they use it to destroy themselves! Throughout their history, they have been strangely intolerant of others of their kind. They devised various means to travel about upon the surface of the seed planet, but when those from one land-mass met those from another, rather than doing the obvious thing and shring experiences and expertise, they would fight one another. Strange to see life-forms of the same planet, of the same species, even, destroying themselves!

"Still they have not learned, and now we have reached the state you see here, and I am certain that the game will soon be lost. The tribes on the two largest land-masses are insane. They have constructed weapons sufficient to destroy the seed planet many times over. Frustratingly both of these tribes have reached a sufficiently advanced state of technology to enable them to leave the seed planet — but they will not unify and share such knowledge.

"Instead, they use their knowledge to build ever more powerful weapons of destruction. And this while they destroy the resources of the seed-planet! Properly maintained, it could support them indefinetely — but they destroy its self-sustaining systems with pollution, they upset the ecological cycle by deforestation, they destroy forever certain of the indigenous life-forms.

"I tried, some two thousand T-states ago, to repair my faulty programming. I introduced a life-form containing a new program I'd written which was considerably more rational than my first attempt. For a while I thought I would be successful — the new life-form gained many followers, rational followers. But the new life-form was destroyed by the dominant ones, and his teachings, although remembered, were twisted and distorted; those who had sought to spread them by rational means degenerated, and were the cause of some of the longest, bitterest and bloodiest battles on the face of the seed-planet.

"Look! Look! Something's happening!" exclaimed Kevin — and indeed, there did seem to be some activity on the surface of the planet. Tiny missiles could be seen arcing upward from the two largest land-masses. Kevin and Jovah watched in silent fascination as the missiles traversed the planet. Some detonated harmlessly in the planet's outer atmosphere, but most of them plunged back to the surface. The globe sparkled with intense flashes of light. Soon, the missile barrage ceased, and beneath the roiling weather-systems could be seen angry, red glows where once had been cities. Finally, the clouds rolled in to cover the scene of destruction, and, within the projection-cube, the words GAME OVER hung superimposed over the image of the blasted planet.

"Oh well, perhaps I'll do better once I've been to Multiversity", said Jovah. He turned off his Megatari. "Come on, let's go down the pub. I could do with getting a few pints of GalactiLager down me neck" . . .

Understanding Numbers and Shapes

Aimed at 3-5 year olds, Understanding Numbers and Shapes attempts to introduce basic maths, counting and shapes to children.

At the start of the program, it draws a circle, triangle, square and a hexagon. It then asks what they are called. At this age, it's asking a lot to name a hexagon don't you think? Next it displays some sums: from 1+1 to 1+1+1+1+1. It also displays (1+1+1+1+1) + (1+1+1+1+1). The children who were trying it out needed quite a lot of egging on and finger counting before they could understand what the sums meant, but we did take kids of just 3 years old.

As the program progresses, it uses characters like a turtle, and a bee to draw shapes and patterns on the screen. The children quite enjoyed these for a short while, but got bored fairly soon.

Later on, the program tries to introduce subtraction by drawing fish, and taking them away. Almost as soon as they are drawn, they disappear, not giving a child long enough to count them. After doing similar things, the screen clears to show a question in small text asking "How many are there now?", and waits for an input via the keyboard. A child of 5 would almost certainly be unable to read the question, and could find it hard to find and press the appropriate keys.

Near the end, it goes into teaching fractions by cutting a car in half and joining it together again which is quite a good, interesting idea which the children liked.

We found the programme started off easy, and worked up to much harder things far too quickly. Children of 3 to 5 years seem to lose concentration after a minute or two with a program of this sort. One of the children summed it up well when prompted with "Look what the turtle's drawing!", replied ith "Yes, but I've got new shoes on!". This program cold be suitable for the higher age of its suggested age level, 3 to 5, but for the younger ones it would need to be made simpler.

R.J. & T.H.

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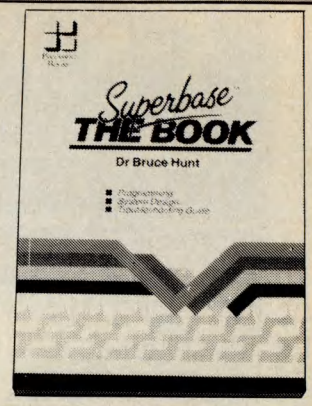

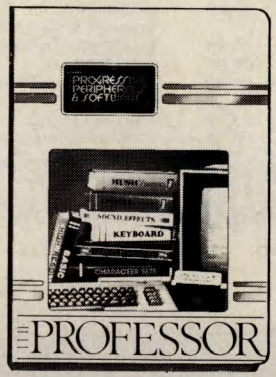

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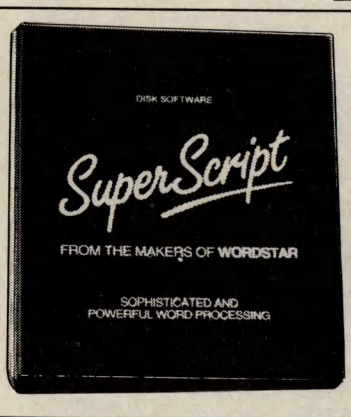

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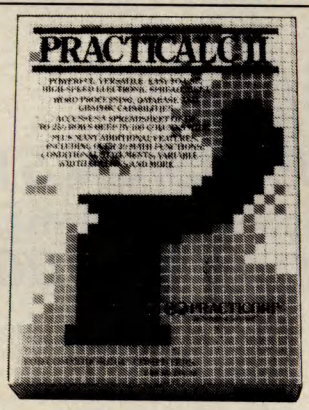

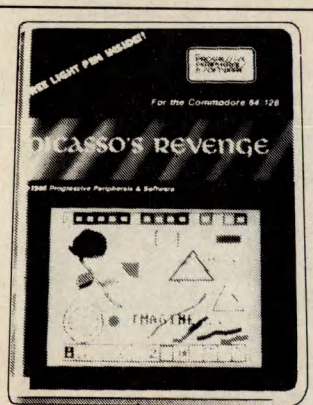

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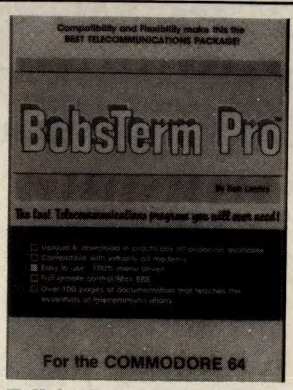

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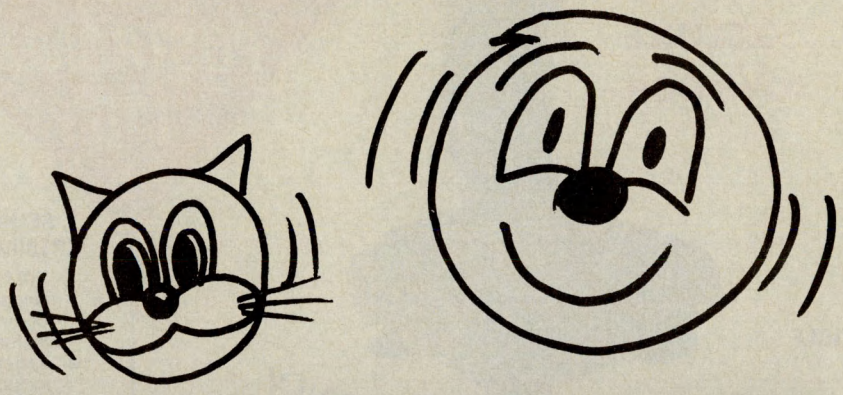
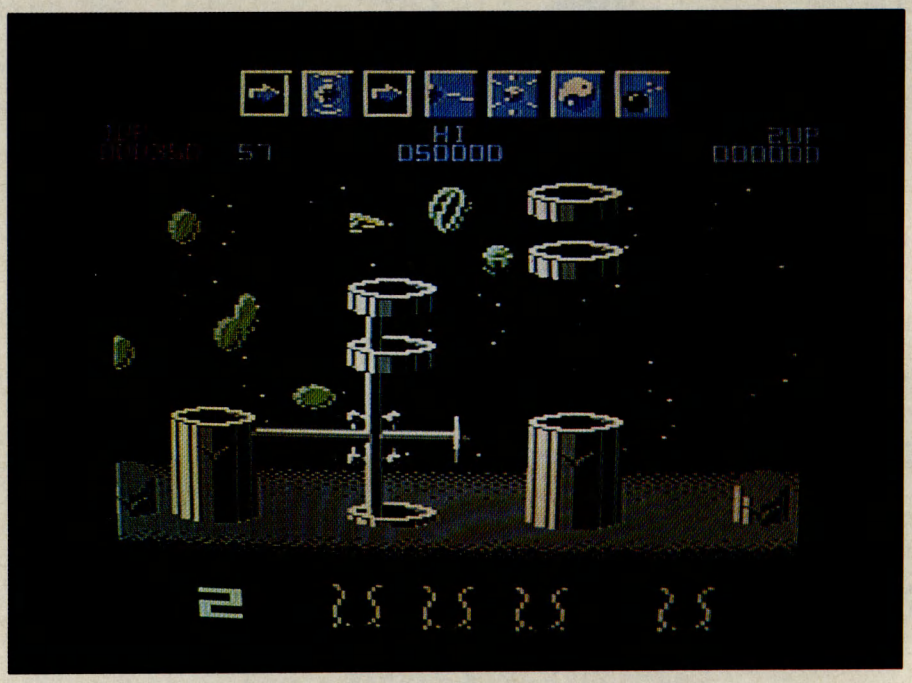


Wizball — Ocean



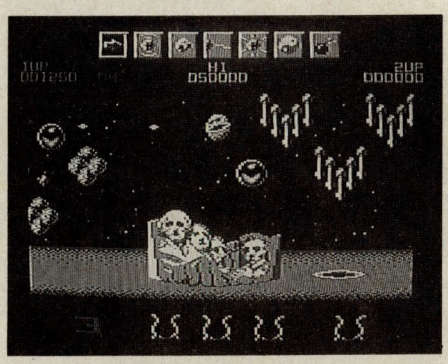
Wizball must be one of the most complicated but playable games to come out this year. Excellently programmed by Sensible Software (well done! Jonathan Hare and Chris Yates. These guys are programmers to watch), already jackpot hitters with Parallax; it looks set to take the summer season games players by storm. Wizball demands you technicolour your world. Your task is to gather enough points — (or paints) to pass through the levels colouring the background (it automatically enlivens itself) more excitingly as you go on.

You are the Wiz — a funny bouncing ball style face. You shoot with a variety of weapons a whole amazing range of nasties, different shapes and sizes and speeds. Fortunately you have the aid of a cat (no not Super Felix, thank goodness!). Well, not really a cat shape at all but another ball shape bouncer. This cat means you can take the game into its special option — a two player shooting-everything-that-threatens-team-Gauntlet style. There are also one player, two player versus one player and 2 teams of two players options.

There are a total of 24 levels to give you a wild variety of scenes and at the bottom of the screen you have cauldrons to fill with colours as you go along. There is at the top of the screen a series of icons to control weapons, nicely programmed to be changed without taking your fingers from the joystick. There are loads of very smart touches and extras like drops of colour that the cat can pick up to extend its nine — very appropriate number that — lives. One drop — a black one — makes the whole scene go black and very difficult to finish the game.

The graphics are not sensational with a different theme each time you move to another level. However they are extremely accurate and attractive as they get more brilliantly coloured. The movements of all the items are terrifically smooth and the horizontal scrolling is slick as anyone could want.

The music by Martin Galway is top class as are the convincing sound effects. This is a game that will be a constant challenge for any player. It has really excellent gameplay. Wizball has a special grab-you-and-not-let-you-go quality that puts it at the top of the Ocean good games list. Could be Ocean are showing signs of really coming back to form with this one. If you liked Parallax, you'll love this one. Highly recommended. T.H.



Price: £9.95
Graphics: ★★★★
Sound: ★★★★
Playability: ★★★★★
Rating: Mega

Program

SCREEN SPLITTER

by Stewart Smith

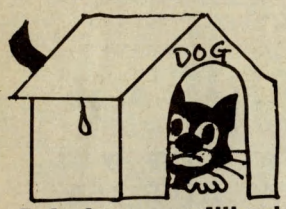
This is small utility program to enable the use of split screens. It is short and functional. It incorporates a demo to show off some of its uses.

```
1 REM ************************************
2 REM *                                  *
3 REM *        SCREEN SPLITTER BY        *
4 REM * STEWART N. SMITH DECEMBER 1986   *
5 REM *                                  *
6 REM ************************************
10 L=40704
20 FOR X=0 TO 7:T=0:FOR Y=0 TO i4
30 READ A:IF A <0 OR A >255 THEN 60
40 POKE L,A:L=L+1:T=T+A:NEXT
50 READ A:T=T-(INT(T/256)*256)
60 IF T<>A THEN PRINT"DATA ERROR IN LINE"1000+(X*10)"CHECKSUM <>"A:STOP
70 PRINT1000+(X*10)"OK":NEXT
99 :
100 REM *** DEMO ***
101 :
110 PRINT CHR$(147);CHR$(144)          :REM CLEAR SCREEN + BLACK TEXT
130 PRINT "SIMPLE SPLIT SCREEN"
140 POKE 251,0                         :REM SET 1ST SPLIT AT LINE 0
150 POKE 252,150                       :REM SET 2ND SPLIT AT LINE 150
160 POKE 253,4                         :REM COLOUR 1 = PURPLE
170 POKE 254,8                         :REM COLOUR 2 = ORANGE
180 SYS 40704                          :REM CALL SCREEN SPLIT ROUTINE
190 FOR A=0 TO 1000:NEXT A
200 PRINT CHR$(147)"HIGHLIGHT SCREEN LINE"
220 POKE 251,49                        :REM CHANGE 1ST SPLIT TO LINE 49
230 POKE 252,57                        :REM CHANGE 2ND SPLIT TO LINE 57
240 FOR A=0 TO 1000:NEXT A
250 PRINT CHR$(147)"CREATE SPECIAL EFFECT"
270 FOR B=42 TO 226
280 POKE 251,B:POKE 252,B+16           :REM CHANGE SPLIT LINES
290 NEXT B
300 FOR B=226 TO 42 STEP-1
310 POKE 251,B:POKE 252,B+16           :REM CHANGE SPLIT LINES
320 NEXT B
330 FOR A=0 TO 500:NEXT A
340 SYS 40785
997 :                                  :REM SWITCH OFF SCREEN SPLIT
998 REM *** MACHINE CODE DATA ***
999 :
1000 DATA 120,165,251,141,018,208,173,017,208,041,127,141,017,208,169,212
1010 DATA 129,141,026,208,169,031,160,159,141,020,003,140,021,003,088,159
1020 DATA 096,173,025,208,141,025,208,041,001,208,007,173,013,220,088,091
1030 DATA 076,049,234,173,018,208,197,252,176,019,164,252,165,254,140,073
1040 DATA 018,208,141,032,208,141,033,208,104,168,104,170,104,064,164,075
1050 DATA 251,165,253,076,059,159,120,173,017,208,041,255,141,017,208,095
1060 DATA 169,000,141,026,208,169,049,160,234,141,020,003,140,021,003,204
1070 DATA 165,253,141,032,208,141,033,208,088,096,000,000,000,000,000,085
```

Is it a bird? Is it a plane? No, it's SUPER FELIX! You, stop pullin

La Casa del Perro — Again

Mioaw! Oh mioaw, indeed. I am penning this from the doghouse! Will I ever get out? Why am I such a fool? O.S.E. is threatening to make a pair of gloves out of me and serve up my scraggy body for dinner to el Conde Davidio de Carlos, the artistocratic P.R. superperson. Why, I hear you cry should your beloved Super Felix end as a paella-style dish? (Apparently O.S.E. heard that during the Spanish Civil War in Valencia, they served cats as food calling them 'Liebre de Mesa' — 'Hare of the Table' — is it any wonder that all cats hate Spaniards!) What has that go to do with the noble Spanish Señior Carlos (now 3rd in line for the throne of Spain?) Well last month I filed the



Baby boomer edition in the garbage pan because it said 'Now +2 compatible' on it. I thought erroneously that it meant what it said. But it was just a trick by Don Diego Zapatos Blanco de Carlos to get me into trouble. Hidden in *TINY* letters on the back practically invisible were the fatal letters (and numbers) CBM 64. Woe is me! Yes it ran on the (yuk twice!) speely but — curses — on the 64 too! This terrible 'Baby Boomer' (yuk) edition has another 3000 frightenly difficult questions for all those maniacs who never say enough twice is enough. Baby Boomer (yuk!). I ask you! Davidio Carlos. I beg you! Domark! I hate you! If I ever hear the words Trivial Pursuit again I'll . . . I'll . . . I'll . . . smile and look frightfully pleased and thrilled. There, is your Hispanic honour satisfied now Señior Davidio? And can somebody tell me what 'hijo de puta' means?

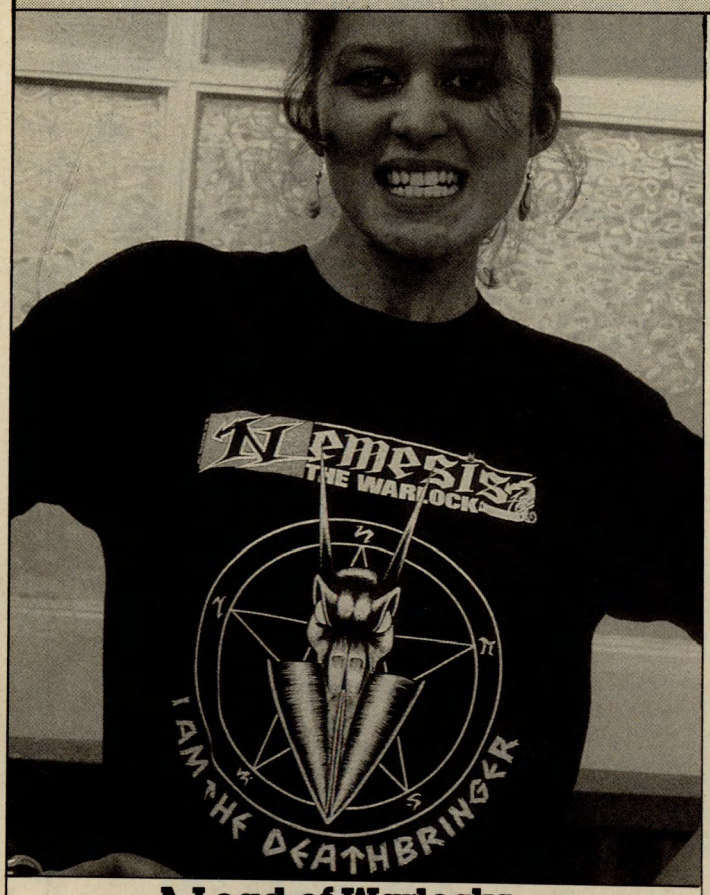
Critical Moss

I can exclusively deny that we are about to change the name of CCI to 'Rolling Stone'. Who would buy a magazine with such a stupid name anyway? It would not last a month. No, the rumours about CCI have come about due to a plethora (a what? Ed). Oh all right, a lot of Mosses appearing like fungus all over this venerable and previously immaculate organ. There is Andy Moss whose craze for adventure leads him into some strange situations. I understand he has been seen in the role of Miss London (or was it Moss London?) in a recent production that toured the capital's underground stations in the mornings. There was Rob ("Keep your hands off my tripod") Moss, the world famous paparazzi who brought his multilensed Hammerschold Mikon Sinalta to snap (the patience of) the stars at the last Commodore Show. He is also famous, of course for the non-stop articulate silences with which he puts his photographic subjects at their ease. There is Daphne Moss, world famous SF critic ("My idea of a fun night is to be attacked by a killer tomato"). She is as everyone knows the exinamorata of 70's popstar Gilbert ("Alone at last") O'Sullivan. Aha, I hear you cry, are there any more Mosses likely to ooze out of the woodwork at CCI? I can now reveal that by year's end joining our editorial team will be Stirling Moss to comment on racing car games, David Moss, ex-Luton footballer and international foodie who will tell us all about Spots Sins and Eating Games and Mickey Moss, the famous Walt Disney cartoon character who will be taking over from Anthony Mael as Features Editor. And about time too, say I. I believe the prize for our end of year competition will be 10 years hard labour on Dartmoor, the chance to try to find a sufficient space to pin a badge on Clare Hirsch's unusual party dress, a course of Spanish lessons on the telephone from a Señora called Joaquina Dolores Fuertes de la Costilla of 2 weeks on a Greek island called Les Moss that has been floated out and moored off California. We also had a U.S. Correspondent called Adam Moss but as he's never written anything, I don't think we can include him, in the 'Moss Count', do you? The whole Moss tribe is extremely celebrated and publicity conscious. You must have seen their advertisement on TV "A Moss a day helps you work, sleep and play!" I woner if that is really true.

Making a mountain into a molehill . . .

You will no doubt wonder what all this fuss about spies and MI5 and so on is all about. I can reveal to noone but you my 4 million confidential readers that the power behind it all is none other than a certain organization I cannot name except by the code word G.R.E.M.L.I.N. (*games reveal every monty lives in Nurenburg*). This secretive organization is responsible for practically every game that is even thought of these days. It has set up command posts not only in Sheffield where its nuke-proof bunker headquarters was originally but now in Birmingham, Lincoln, Hull and probably for all any of us knows in every town and village with more than 6 people throughout the UK. It believes it can trick us into thinking 'Auf Wiedersehen Monty' is not a reference to a Nazi plot in the House of Lords and install a mole as Lord Chancellor. We all know that the MI5, CIA and even the KGB are already full of moles and we also know who controls them don't we? CCI Tower was recently visited by one of the dangerous top ranking women spy masters that keep G.R.E.M.L.I.N., this shadowy ruthless association of international power brokers growing. Adopting the innocent-sounding nom-de-guerre of Sue Quinn she was caught by our eagle eyed O.S.E. bugging the place with a Thing on a Spring. She said it was a game! A likely story! Who does she or that immensely powerful leader of hers — Sir Ian Stewart (Future Knighted for his services to moles and Bounders) think the are fooling? Super Felix fears nobody. Watch this space for more dastardly G.R.E.M.L.I.N. developments. But tell no-one you read it here. G.R.E.M.L.I.N. power is everywhere!

that paper bag over your head! He knows who you are! And why!



A Load of Warlocks

Martech watch out! You are not the only ones with a Nemesis the Warlock. The moment Princess Krotoa put on the N the W Death Bringer tee shirt she took up the stance she adopts when speaking to advertisers who are late getting in their ads. Note the teeth — she has them specially sharpened. For 5 million forints (what the hell is a florint anway?), I won't give her your home address. Help, here she comes. No! No! Not the snarling teeth! Not that! Anything but the teeth!

Barryolasoft by Starlight

I can absolutely deny that the fabulously rich Lady Amanda du Barry (direct descendant of King Louis XIV of France or somewhere) is taking over a certain company and calling it Barryolasoft. The fact the delightfully bearded twins Frank and Ashley Brungergrey have departed the Ariolasoft corral riding off into the sunset to do what men have to do (whatever that may be) leaving the fabulous Lady Amanda to do what girls have to do (whatever that may be too) has absolutely nothing to do with Lady Amanda's aristocratic continental connection (the Germans always crawl to the French in the long run). I can also authoritatively deny that Lady Amanda who now regularly hosts little lunchtime parties at the Covent Garden's trendy Rock Garden Club (a mere fifty or sixty people share her sandwiches) has decided to install Barryolasoft in the sitting room of Isleworth Manor — her huge London house. But something is going on. There was certainly starlight in her eyes when O.S.E. spoke to her recently. She even got him to carry her bag. Could it be connected with a certain Bruce Frances Lee, once known for his karate skills but now creating brilliant shoot 'em ups? If you ask him about it mention the word 'Deathscape' and prepare to duck.

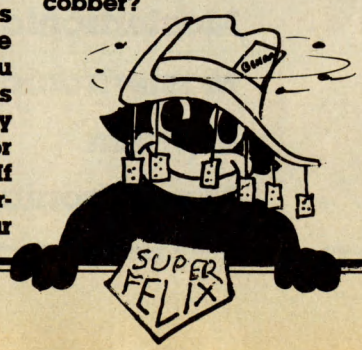
Not just an ordinary Jo!

Sometimes I fear to step into the shadow of O.S.E. I might disappear in a puff of smoke too! The arm of O.S.E. as you know descends with awful speed. Do you know what happened to that sweet Lady Jane Denning of Melbournatronic House? Just because she complained of Major Billy Brown being sexy or me being sexist — which are practically the same of course... One moment she was Marketing Chief of MH, the next... Condemned to leave the software industry and take refuge with a property developer, which is like being sent to Australia in the days of the convicts.

Now to speak with the distinguished people at Melbournatronic you have to make a telephone appointment with the assistant to the social secretary of the aide to the deputy of the executive assistant of the most high PR Queen — none other than the Honourable Jo Meads (Blessed be her Name!) If you are very lucky and very well connected (the Prince of Wales as your telephone operator) some even lower underling will deign to tell you that the very High Honourable Jo is on the line to the Pope, the Queen, the late President Lincoln or Reagan or some other unimportant person (compared to the Hon Jo). I found O.S.E. sobbing huge tears of gratitude the other day. He was staring at his telephone muttering, "She called me. Jo Meads spoke to me. Herself... Oh Joy. What an honour!" I had to hang onto his leg to stop him throwing himself out of the window of CCI Tower in sheer delight. "After all", he said, "everything after this is worthless"... One day dear reader, if you are very good, you may ascend to paradise and listen to the Most Honourable Jo telling the Angel Gabriel about Mastertronics latest releases... Then you'll know you're really in heaven, won't you?

FEELING THE STRINE

As Prince Charles went to the Antipodes to get an education, so Aussieland has sent one of its top people to tell the poor old Poms how to 'produce'. A certain Sharon Wongflic has departed this CCI world (she was always more noticeable by her absence than her presence). She has left her place as Production Princess a glamorous star of the beaches, Americas Cup at Freemantle Miss Romayne ('good on yer Shiela, you're bourne (no relation) Jesudason. Miss Romayne Downunder, as she is universally known, is already extremely popular with everyone connected with CCI for the genteel way she screams aboriginal curses, kicks furniture to bits and threatens terrible tortures (for her the Indian rope trick means she beats you with it!) at anyone who is one minute late in delivery anything she has asked for only 30 seconds before. If you mention the three nervous breakdowns and four suicides that have already taken place at CCI's typesetters and printers in the few short weeks Miss Romayne Downunder has been with CCI, she merely chuckles merrily. Great sense of humour, the Australians, know what I mean, cobber?



TOP TWENTY

Chart Chatter

Another new number one — the charts are quick changing these days — Elite Hit Pak strikes the top. Bulldog (read Mastertronic) has a climber in the cheapie Feud. Gremlin makes its mark with two new entries Auf Wiedersehen Monty and Samurai Trilogy. Martech's Nemesis the Warlock comes zooming in and Beau Jolly's 5 Star games hold onto last place. In the C16, Storm looks blown out and falls seven places but Mastertronic takes top place with long time seller Gun Law. Tynesoft have rising new entries with Future Shock and Battlestar — not to be confused with Mastertronic's Battle which comes in at number seven.

C64

	GAME TITLE	COMPANY	Price(£)		Rating
1	Elite 6 Pack	Elite	↑	9.95	Mega
2	Feud	Bulldog	↑	2.99	Mega
3	Gunship	Microprose	↓	14.95	Mega
4	Arkanoid	Ocean	↓	8.95	Crisp
5	Auf Wiedersehen Monty	Gremlin	★	9.99	Awesome
6	Samurai Trilogy	Gremlin	★	9.95	Mega
7	Nemesis The Warlock	Martech	★	8.95	Mega
8	Ranarama	Hewson	↑	8.95	Crisp
9	The Great Escape	Ocean	★	8.95	Iffy
10	5 Star Games Vol. 2	Beau-jolly	→←	9.95	Mega

C16

1	Gun Law	Mastertronic	↑	1.99	Crisp
2	Winter Events	Anco	→←	7.95	Awesome
3	Battle Star	Tynesoft	★	7.95	Mega
4	Comp Hits 10 Vol. 3	Beau-jolly	↑	9.95	Crisp
5	European Games	Tynesoft	↑	7.95	Mega
6	Future Shock	Tynesoft	↑	5.95	Crisp
7	Battle	Mastertronic	★	1.99	T.B.A.
8	Storm	Mastertronic	↓	1.99	Iffy
9	Future Knight	Gremlin	↓	6.95	T.B.A.
10	Megabolts	Mastertronic	★	1.99	Crisp

CARTOON'S MOST ELUSIVE CHARACTER HAS FINALLY BEEN TRAPPED.

ROAD RUNNER*

THE ARCADE SMASH HIT THAT RECREATES THE SPEED AND EXCITEMENT OF THESE CLASSIC ENCOUNTERS.

Young or old, whatever your age everyone enjoys the antics of the cunning Road Runner as he baffles and bemuses poor Wile E Coyote. Or does he?...

This is your chance to really find out as you take on the role of Road Runner in this comic, all action extravaganza that recreates these nail biting chases and the fast moving excitement to perfection. Speed through canyons and along the highways following the trail of birdseed left for you to feed on (is this the first trick???) Dodge your way round the onrushing trucks keeping an eye out for the perilous mines and feather ruffling, leg busting oil slicks. What dastardly plans has the sleazy Wile E Coyote got in store for you as he lurks in hiding, cowardly awaiting his moment to enjoy a succulent roast of "Road Runner and French Fries".

We're sure you'll overcome all the dirty tricks he can throw at you with ease, agility and grace and a haughty "Beep Beep". Overcome them that is if you've got nerves of steel, the reflexes of a wildcat and the speed of the fastest bird on two legs, otherwise its sorry, goodnight and "Burp Burp"!!!

CBM 64/128 TAPE £9.99 DISK £14.99 **ATARI ST** DISK £24.99

SPECTRUM 48K TAPE £8.99 **AMSTRAD** TAPE £9.99 DISK £14.99

ATARI GAMES

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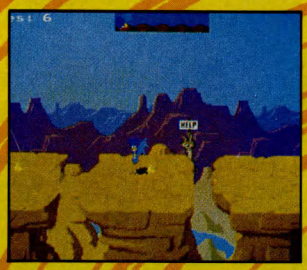
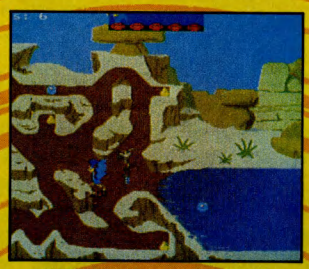
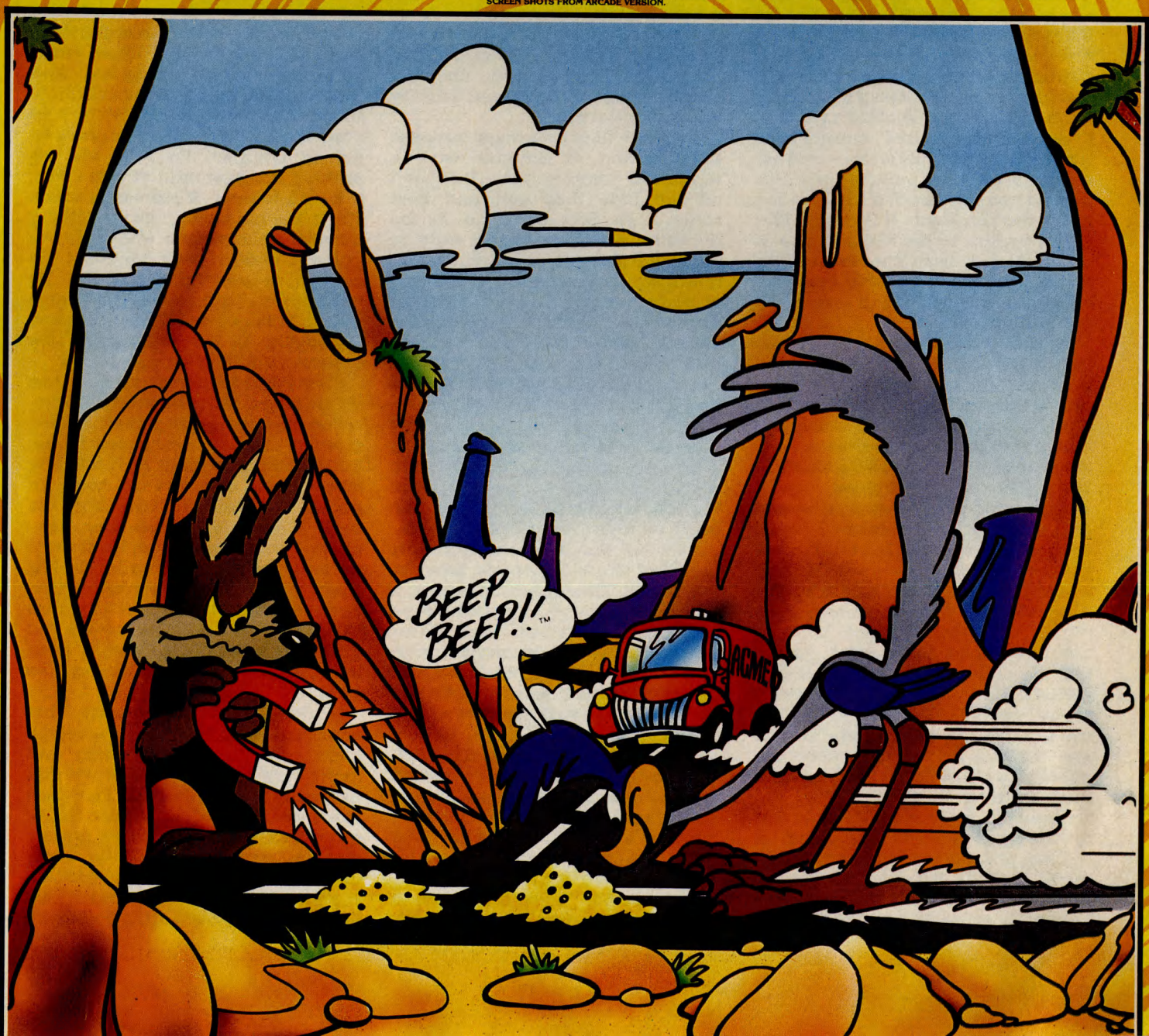




SCREEN SHOTS FROM ARCADE VERSION.

U.S. GOLD All American Software

U.S. Gold Ltd.
Units 2/3 Holford Way,
Holford, Birmingham
B6 7AX.
Tel: 021 356 3388.



Feature

Still Gliste All These

U.S.Gold is a legend in its own time; and deservedly so. There may be newer games houses. There may be brighter, quicker, more creative, even profitable games companies but such is the power of this heavyweight among entertainment software organisations that when it speaks the whole games world listens. Not for U.S.Gold the hurly-burly, the gregarious confusion of a press conference at which to announce new games to guzzling newsmen trying to impress each other with a studied cynicism that even "The Empire" cannot halt. No, U.S.Gold now has style — and the muscle to get each publication into a private head to head, a lay it on the line private session. It is a little like being invited to the White House. A discreet call from the President's Press Secretary — in this case the ubiqitous Richard Tisdall — and you are bade to attend.

Well, it wasn't exactly the White House but the ultra-luxurious Savoy Hotel in London's West End is not a bad substitute. And it wasn't the President, in fact Tim Chaney, U.S.Gold's M.D. might be thought more the Vice-President to Geoff Brown's Head of State of the U.S.Gold Empire.

Chaney is tall energetic, eloquent and extremely well-informed on all aspects of the games business. He is truly a Commodore man having worked for CBM back at the beginning of its U.K. history. He presents the future U.S.Gold products with a genuine enthusiasm and games playing delight. What he tells CCI reveals that changes are taking place across the U.S.Gold scene that are not apparent to the uninformed eye but are intended to keep the champion still with the leadership of the industry in its grasp.

Three years ago when U.S.Gold first hit the games world like a ton of bricks falling on crate of eggs, 'Gold' made its big impact through the mass importation of U.S. Software — hence the name. Today, Tim Chaney tells us, its dependence on the States is down to 30% but there has not been a loss of quality. Or if there has no-one has noticed it, for last year U.S.Gold had 5 number ones in the charts including that most sought after number one — the Christmas chart topper — Gauntlet, which it created itself. (Everyone knows, of course, it was that burgeoning outpost of the Empire, Gremlin that programmed it but who cares for subtleties like that? It went down to the U.S.Gold score.)

Chaney tells of the fraught business the creation of Gauntlet was. A terrifically complex game, it needed all the time they had and then some... In fact so close to the deadline was the product arriving that warehouses — Centresoft's naturally — were waiting with boxes already gaping hungrily for the desperately awaited cassettes to tumble. When they came it was December 17th — and they flew in and out almost without touching the ground. The follow up to Gauntlet — Deeper Dungeons was less urgently created — virtually all the screens were the result of a challenge put to players of Gauntlet who sent them in. The follow-up Gauntlet may well turn out to be nearly equally big seller.

All this action is, of course, going to cost and Goldites hope to bring in, big bucks. How much does one of these powerhouse games take to get on the road these days? Well, it's not done by a 16 year old amateur on his C16 for peanuts. The whole bit from negotiating the license to hitting the street with it in vast numbers will not bring you — or U.S.Gold, Chaney says, much change from £150,000. No wonder with such costly geegaws, Chaney sees this year there being a substantial reduction from the number that U.S.Gold released in 1986. Guess how many it was? Around 160 across all the formats.This year round about 25 big titles are planned. Times Commodore, Spectrum and Amstrad, of course. They will come throughout the year. There will be no let up in Summer. Everyone, especially U.S.Gold knows, that school holidays don't see a slow down but a speed up in games buying. And 1988?

Well, already plans are advanced with the heavy policy of really big titles carefully separated so that they don't clash with each other really gathering weight and speed. And there is one further determination. One that might send a shiver up and down the spines of other less powerful games empires. U.S.Gold will be seeking a bigger market share. Yes, it is still hungry. It still wants more. Won't that put a strain on everything including the people who write the games? Well, if they can't get the calibre of people in the U.K. to provide the coding necessary to give them hits then they will go overseas, especially to the U.S. Damn the expense, U.S.Gold wants the best...

Chaney strides across and switches off the large, old-fashioned TV. Television and computer games... They seem a shade incongruous in the Edwardian splendour of the luxury Savoy Hotel. But it is an hotel for people who want and can afford the best. A hotel for people who have arrived, who have power. U.S.Gold is no longer a Johnny-Come-Lately. It is a part of the Establishment. It is of the power-wielding class. The sun shines in through the window across the glittering water of the Thames. Even the river seems to be shining like gold.

Marketing-led? That means that you by some gut reaction or research know what the public wants and make sure they get it. Like with an irresistible compilation that has value oozing out of its double or triple box. One such extra goodie was an amazing Accolade triple header put out in a "limited Edition" a short while ago. U.S.Gold claim they made only 5000 of the packages

ning After Years...

and sold them out at once. Not surprising considering the trio were three all time 64 greats: PSI.5 Trading Company; Law of the West and HardBall! for just £9.99 the lot. Now that's what we call value... Chaney does not tell us what we heard from another source that although only five thousand were *initially* produced when some sharp purchaser wanted to grab another thousand after the five had gone — the extra thou magically appeared. Our editor has put away the CCI copy in mint condition, obviously thinking that one day it will have the rarity value of a van Gogh Sunflower... Now U.S.Gold has another such with top wow factor from Epyx holding Summer Games I, Pitstop II, Breakdance and Impossible Mission for that neat £9.99.

Big Bucks

One of the new U.S.Gold's determination, even with this spate of obvious potential winners is to stop competing against itself. (Though Chaney affirms with total seriousness that he — and U.S.Gold — regards Ocean as a notable competitor. You need strong nerves and a poker face to maintain that in view of the shared directorships...) But even so, putting out as many games as U.S.Gold has in the past must have reduced the likelihood of success if each were fighting for top spot. So the message is now that it is to be the very highest quality games that will absorb U.S.Gold massive strength. He clearly is willing to be quoted when he says "Our policy is to pay the market price for whatever we consider the best..." For market price read the most money. And that signifies that they are out for games that can be converted not that merely have name. They are not very respectful towards people who have bought up cheap licences. They have some "heavy duty" coin-ops lined up. Yes, that Last Mission is nothing but an out and out shoot 'em up with extras fast 4 way scrolling with 8 levels to carry you up into the dark night of total blast away desperation...

And there is another intellectual feast — Rygag which could be the fourth most popular coin-op ever (by the folks who wrote Bombjack). This is a simply "Let's fight everything" stormer. You can kill on 27 levels with flashy left to right scrolling and death spreading like tomato ketchup over french fries. You'll get your chance to Rygar the universe around PCW times.

While U.S.Gold has brought on its own product line, of course, it still has a dominant role in the U.S. import market. With Epyx it has the most successful publisher in Europe from the U.S. and it has Accolade, Access and Datasoft too. And the company is also by far the largest exporter of those class products to Europe.

U.S.Gold's close association with the biggest distributor of entertainment software this side of the Atlantic — Centresoft — allows it to make major inroads into the lucrative European markes. France, Germany, Spain, Italy... they are as much U.S.Gold markets as is the U.K. It even has its own companies there.

Brand — led... Licensing — led... Marketing — led

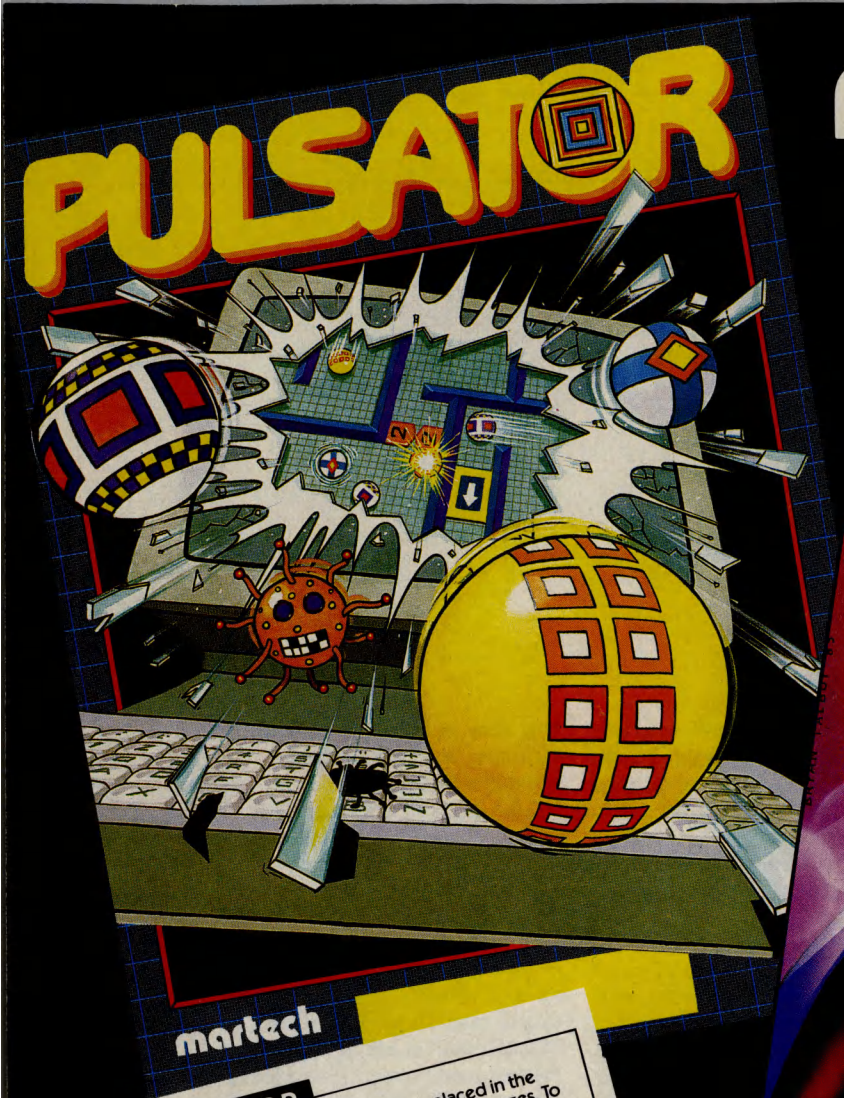
One of U.S.Gold's main problems is what the French call an embarasse de richesse — which roughly means too much of a good thing. The sheer quantity of top class releases it makes has worked against some of them succeeding — or at least that is how Chaney sees it. He tosses out figures like last year U.S.Gold had five Number ones and spent 36.4% at the very top position. This year it has had 50% of the year at the coveted number one spot but, he admits, with only one game — Gauntlet. And by the way, there is to be a forthcoming Amiga version. Could be they'll change the name of U.S.Gauntlet...

The only challenger that U.S.Gold has in house for its Gauntlet success is Leaderboard which has produced a whole set of successful sequels. There is still another yet to come and though he swears this is to be the last — 'The Definive Leaderboard'. It's called 'World Class' and has an 'impossible' course for fanatics. Would you kill off such a hit formula? Everybody loves Leaderboard and Exec Leaderboard and World Class Leaderboard and...

Those two highly succesful games are typical of the sheer style of U.S.Gold. It is, as Chaney points out "Brand-led, Licensing-Led, Marketing-Led". What he means is that the kids, the games buying kids and their older brothers, go for known name quality — and U.S.Gold has come to spell that. They also like to buy games they recognise. So that is what U.S.Gold gives them. Think of the past. The great hits like Beachhead and Supercycle. Well, you can watch out for equally big names to hit you — Road Runner and Indiana Jones are just two starry Coin-op conversions.

And there is Last Mission from Data East and Rygar and Salomon's Key from Techno. Oh yes, there is also Accolade Comics. That's not one game but what looks like material for a whole series. Not forgetting a new series called Street Sports — a lighthearted look at the way they play baseball, basketball, and street football (quarterback not soccer style) on the block as seen by one of the all-time great Commodore programmers, Andrew Spencer; he that created the legendary International Soccer. After making his fortune on that — he was British by the way, he dropped out of sight in Europe and has now emerged again as genuis as ever in the U.S. for 'Gold', naturally.

martech....
LIVE THE GAME!



PULSATOR

Your 'pulsator' has no choice. He has been placed in the heart of a series of frighteningly dangerous complex mazes. To escape, he must release the five missing 'Pulsies' each one a captive on a different maze layer.

But he is not alone. A variety of deadly and intelligent enemy pulsators patrol the mazes, each with its own devious way of making life difficult.

Blasting them to pieces will not always be the right thing to do – and anyway, it's easier said than done.

A fast moving and addictive game, requiring quick reactions and quick thinking. Only for those in search of a real challenge!

NEMESIS THE WARLOCK

Can Nemesis the Warlock fight his way through screen after screen of vicious Terminators to find and destroy Torquemada, cruel grand Master of Termight?

Wave upon wave of the evil horde fall before his gun or to crushing blows from his mighty sword Execessus, but still they come. As the battle rages, Torquemada exerts his twisted influence on the scattered corpses of his demented followers and they burst grotesquely into life as deadly scythe-wielding zombies.

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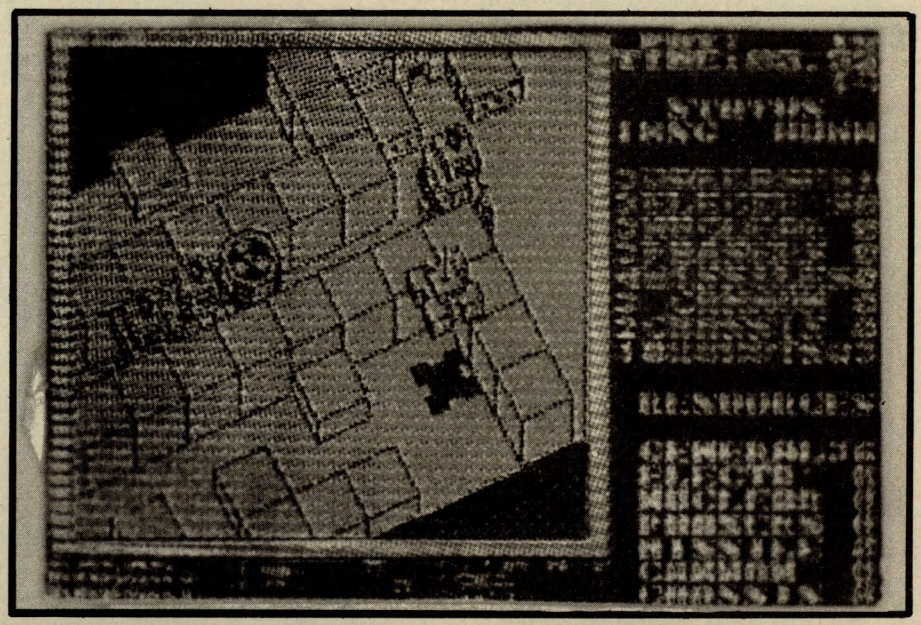
		(Pulsator & Cosmic Shock Absorber only)	

NAFF

Price: £9.95
Graphics: ★
Sound: ★
Playability: ★
Rating: Naff



Nether Earth — Quicksilva

Argus Press Software are one of the joys of a *real* reviewer's life. In the midst of the hard work, and frequently long hours you have to put in to review a Hewson, Gremlin or Firebird game you can always count on Argus for a good kip. Whether it's the dull packaging, the poor instructions, or the boring gameplay, Argus games are the insomniac's delight — and this one is no exception.

"Nether Earth" sounds like it's going to be a great game. 'Meaty storyline about alien invasions, tens of millions of human casualties, robot factories and airborne reconnaisance, a screen shot that promises isometric 3D displays, etc. etc'.

Unfortunately the truth is an obscure and graphically premitive display that jerks along at the speed of a Spectrum loader. The instructions are full of detail, even going into tactics of how to win a conclusive victory (you need to destroy the 3 alien bases and keep your own) but the game itself gave me little opportunity.

The action is viewed directly from above, with a radar display underneath and a status line to the right. The graphics on the main screen are bulky and colourless, and you are never told how to occupy enemy bases or identify your own — obviously a major part of the game!!

Furthermore the promised 4-directional scrolling frequently defaults to a mere 2 making most of the action somewhat unplayable.

If the graphics had been more inspiring, or the instructions better, this might have been worth persevering with. As it turns out however, Nether Earth looks and plays like a second rate wargame and in that respect all the alien blurb seems a bit irrelevant. If anyone out their perseveres with this and discovers it to be brill and full of screen. I'd never imagined, then please write in and set the record straight. In the meantime, I'll go on believing that Argus is quite the naffest label around. Why? who knows but there must be a reason why Rod Cousens, Ron Smith, Peter Holme, Jane Cavonogh, Mike Segrue etc. all left for other companies. Good night . . .

T.M.

Strike by Mastertronic

Isn't it funny how computer games seem to follow fashions. So far we've had platform games, decathlon style joystick wigglers, and Gauntlet to name but a few. Now it seems to be ten pin bowling.

Mastertronic jump on the bowling band wagon with Strike, a new title on their MAD label. Strike is viewed in isometric 3D, the screen showing the bowler and the first few meters of the bowling alley. The top left corner shows a front view of the pins, where you can see how many you've knocked down.

The bowler is controlled by moving left and right to line up the shot, and pressing up on the joystick to step forward ready to bowl. Bowling is done by holding down the fire button for the right length of time. Not holding it for long enough will result in the ball dropping feebly to the floor. Holding it down for too long will make the ball fly into the air and land painfully on your toes!

There is a computer player to compete with, or you may play an opponent.

The graphics are quite neat and well animated with a large bowler. The music can annoy after a while, but I do like the way it starts of as the sound of the ball rolling down the alley and hitting the pins.

The gameplay doesn't have much variation, and you could find after playing it for a few days, you don't come back to it very often.

Strike is a well written and presented game which gives good value for money at £2.99.

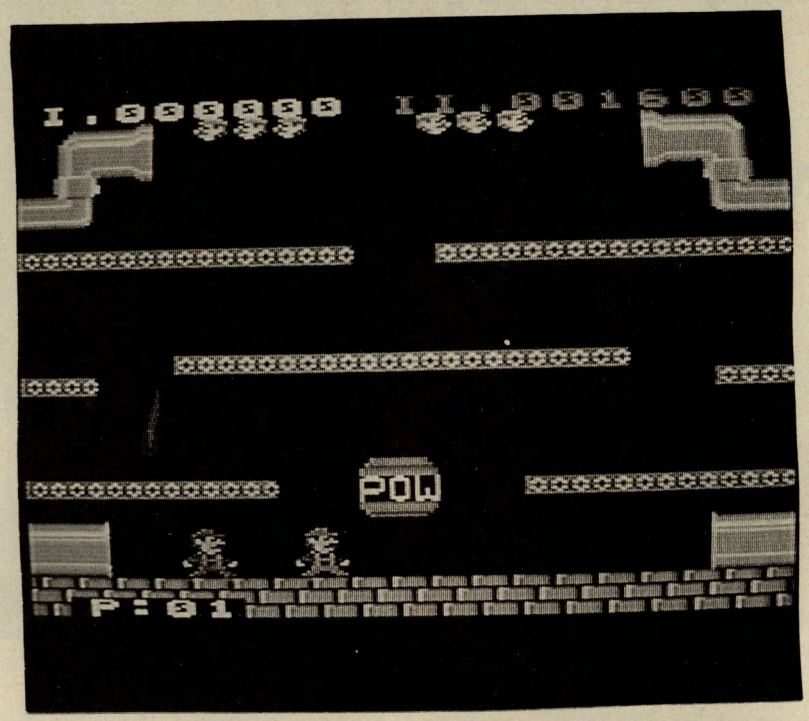
T.H.

CRISP

Graphics: ★★★
Sound: ★★
Playability: ★★★
Rating: CRISP

C64

IFTY



Mario Bros — Ocean

Those of you who gasped in wonder, nay disgust, at Ocean's "Donkey Kong" a few months ago will be equally surprised to see another Nintendo zombie exumed for the full-price treatment.

"Mario Bros" is not only so old that most of us have played it on 'Game and Watch' Calculators, but Nintendo themselves have superseded it with the infinetely better "Super Mario Bros". Nevertheless, it's a license I suppose, and Ocean seem to think this more important than anything else at the moment.

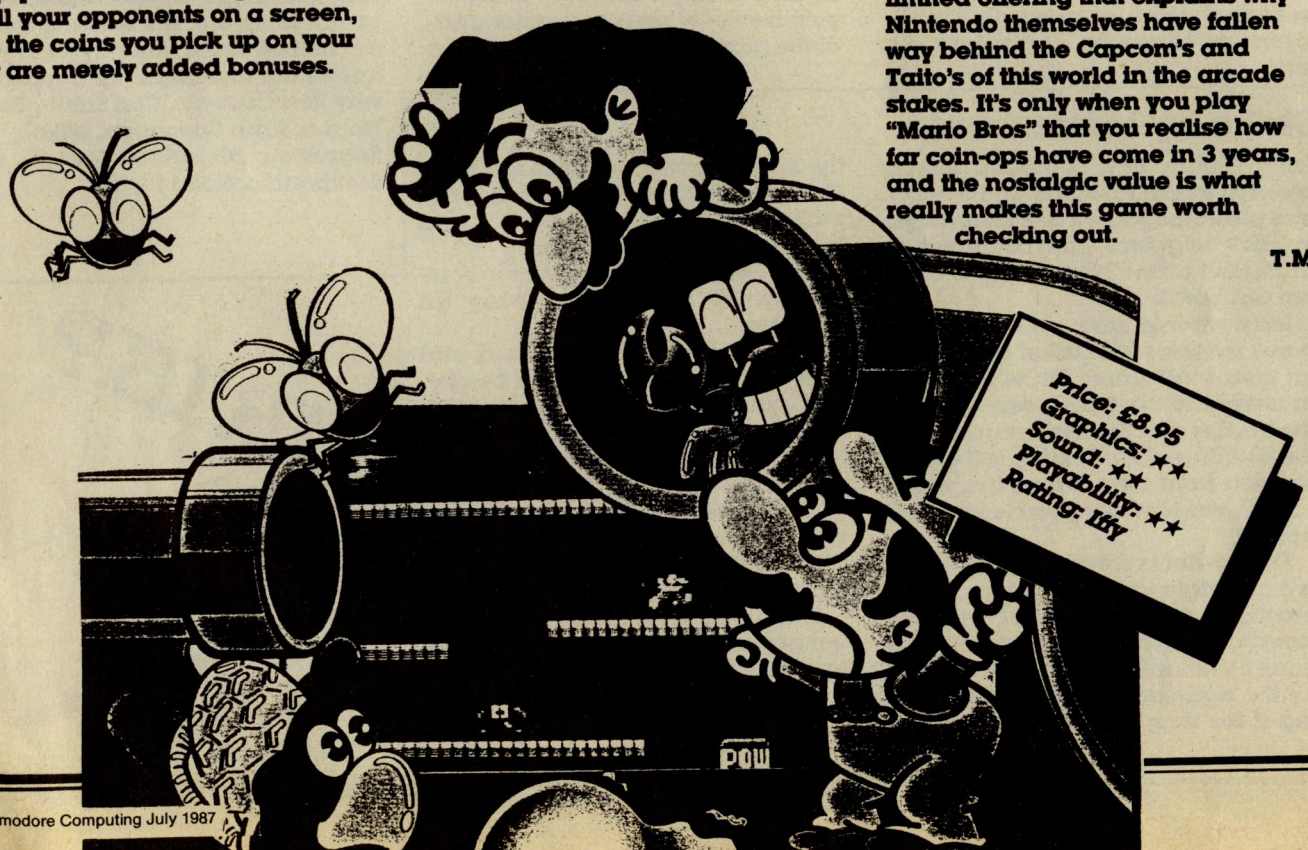
Mario Bros, is really a platform game without keys, wineglasses, dollar bills or any of the other annoying trinklets that normally need to be collected to progress to the next screen. In this game you simply have to survive by disposing of all your opponents on a screen, and the coins you pick up on your way are merely added bonuses.

The screen is a 4-tier network of platforms. You can run along these and jump up or down between the gaps. If you jump directly under another platform, it bends upwards to displace anything currently above you in the same place. So when the nasties appear you simply dart around flipping them over like this and then run across them to kick them off the platform. The nasties are initially turtles but later crabs and finally flies, and they increase in number and speed as you move up the levels.

The screen wraps around on either side, and there are sections of pipe at the top and bottom through which you can make short cuts. Unfortunately so will the nasties and on later levels life can be a frantic and somewhat unrewarding experience. For all your work all you get is the same screen with different numbers of obstacles.

In Ocean's favour this is a first class conversion; with excellent sound and some of the cutest graphics this side of Ultimate. That having been said it's also a pretty limited offering that explains why Nintendo themselves have fallen way behind the Capcom's and Taito's of this world in the arcade stakes. It's only when you play "Mario Bros" that you realise how far coin-ops have come in 3 years, and the nostalgic value is what really makes this game worth checking out.

T.M.



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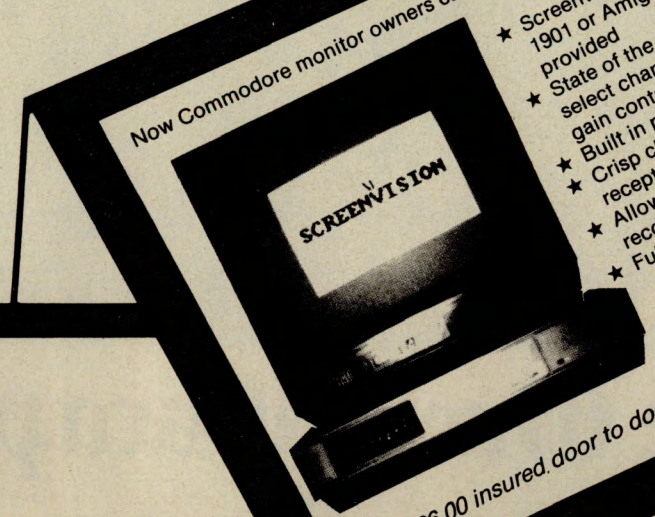

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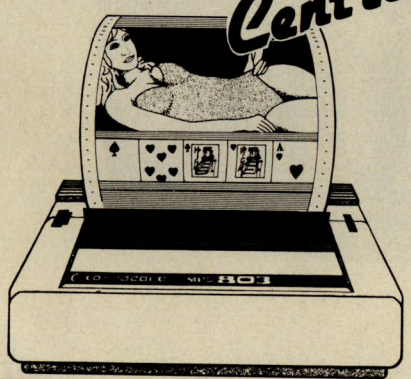

C16/+4 REFERENCE BOOK £7.95

The book lays special emphasis on the graphics, sound, music and machine code programming. The graphics cover standard, multi colour, high resolution bit mapping, soft scrolling and raster interrupt. Its coverage of machine code is extensive and gives full information regarding KERNEL routines and how to use them in your own programs. The book gives complete memory map, 7501 processor commands, C64-C16 comparison chart to enable conversions and the all important KERNEL jump table. The subject under discussion is explained lucidly and illustrated by examples, often with line by line explanation.

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C64

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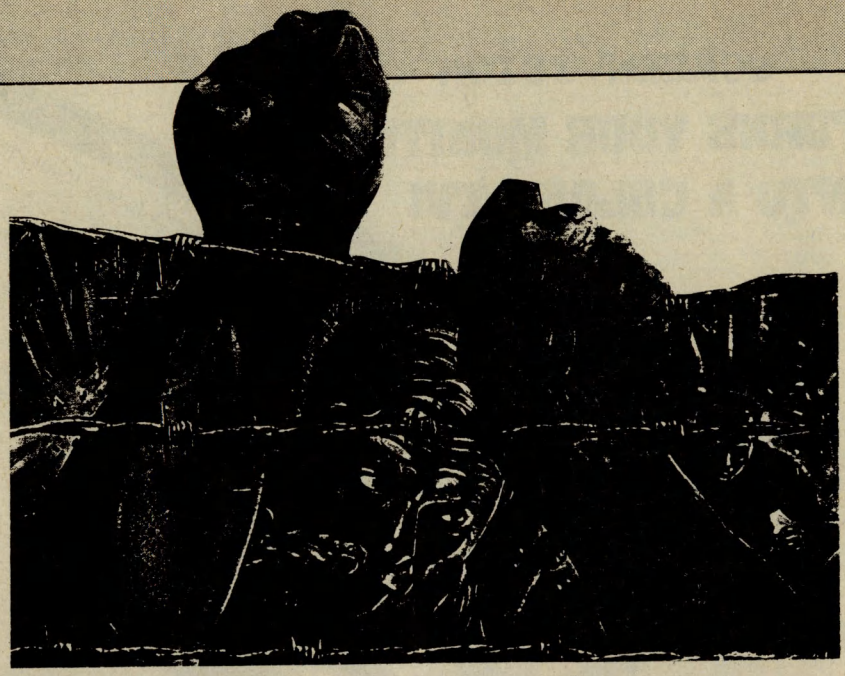
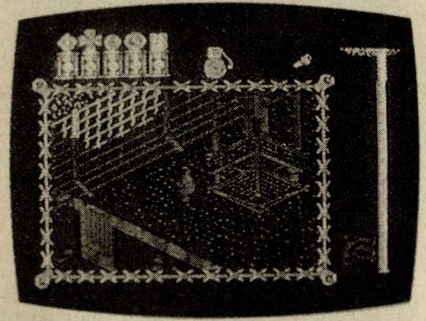


The Great Escape

Captured in Germany in World War II, you are being held prisoner in a POW camp. You are fairly new here and the thought of spending another week, let alone years, in the camp fills you with despair, so you decide to do what any self-respecting Englishman would do —escape.

You know this will be anything but easy, if not impossible. Many have tried before without success and given up, but being a newcomer your morale is high and you're determined not to give in.

The camp is in a converted castle with makeshift huts for the

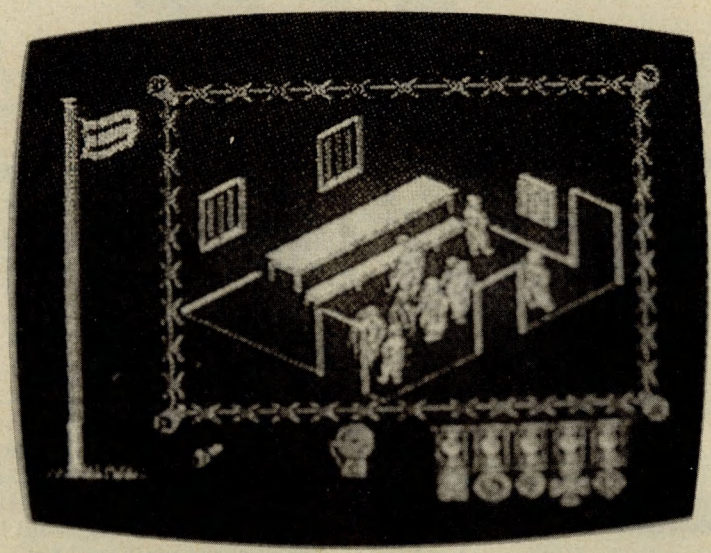


prisoners, rooms inside the castle used for meals, and a solitary confinement cell for anyone caught with any suspicious objects or tools. Other rooms contains things such as keys, wire-cutters, a guard's uniform and the like which could all come in handy during an escape.

Finding and using these objects must be done carefully by sneaking off unnoticed during the daily routine. If you're caught wandering out of bounds an alarm sounds, you're put in solitary for a short while and any tools you may have are confiscated.

Under the camp is a network of drains and tunnels dug by past attempted escapees. These in themselves aren't escape routes, but could be developed, or simply used for storing tools.

With such a good idea, it's a shame it wasn't executed better. The camp and rooms are shown in Nightshade/Fairlight style 3D. While you're walking around the camp a fairly small window scrolls in amazing wobble-vision. This coupled with a lack of speed fails to create a sufficient feeling of excitement or tension.



The pace of the game is too slow for my liking. It's a bit of a drag attending roll call and breakfast time when nothing much seems to happen. It can be fun exploring the camp and underground passages; more places become accessible with further play.

There is hardly any sound in the game, just a few basic effects. Some music or decent sound effects would have made it more interesting.

I did manage to escape once, but was shot as a spy, presumably because I didn't have the necessary papers.

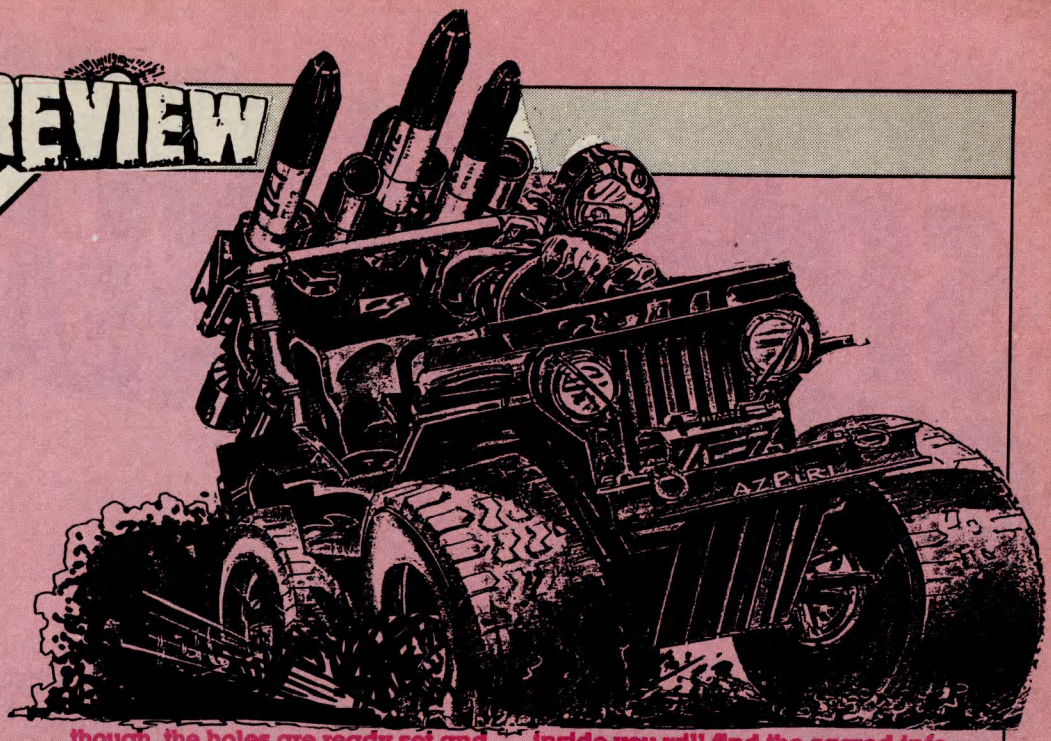
It was expecting a classy arcade adventure in The Great Escape, but am somewhat disappointed with its implementation, though it's not all bad and does improve the more you play.

T.H.

Price: £8.95
Graphics: ★★★
Sound: ★
Playability: ★★★
CCI Rating: Iffy

MEGA REVIEW

MEGA

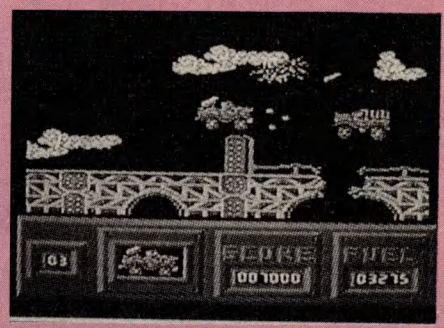


Army Moves — C64 Imagine

You have been signed up by the special operations corps and you've got a very dangerous mission to complete. You must get to the enemy's headquarters and there, locked in a safe is some very important information. This information is so vital that the conflict could be won or lost on its discovery. The HQ is a mean journey away. You must battle your way through deserts and jngles inhabited by hostile enemy forces. You are supplied with various forms of transport for your mission and you start of with a turbo charged jeep (I'd much prefer an XR3i!). In the first stage you must endeavour to reach your helicopter base. The scenario reminds me very much of Moon Patrol. You are travelling along a bridge and occasionally the bridge has been bombed out and this is where your jeep comes into its own. Unlike Moon Patrol though, the holes are ready set and they won't just appear in front of you. As well as the holes you must watch out for the enemy jeeps and helicopters who are hell bent on stopping you completing your mission.

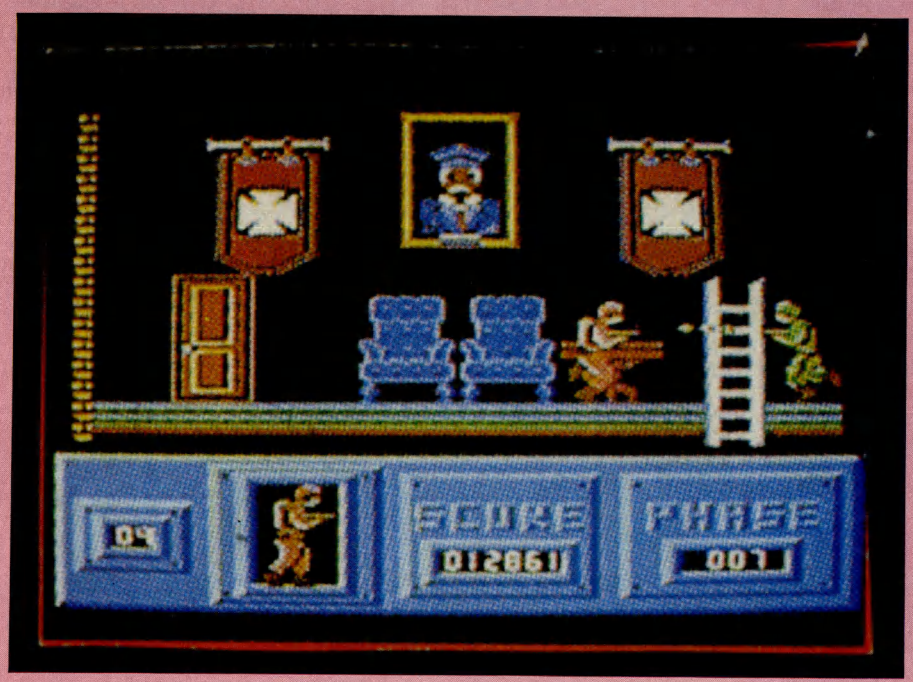
Once you've completed the first stage you are then issued with a helicopter. Your goal here is to reach the jungle heliport. Your helicopter is your best friend in stage two, three and four. If and when you complete stage four you will receive a code which allows you to play the final part of the game. Now you only have three stages to complete before getting to the desired information. In stage five you are unfortunately on foot and things start to get a little bit harder. You've got to tackle swamps and the nightlife in the enemy barracks. Once inside the HQ you've got to find the safe and inside you will find the sacred info that you've been striving for.

Army Moves surprised me, it is, in fact, tremendously playable. At first it seems impossible but after a few games it becomes easier. It is so demanding that it would probably be easier with two players because whilst one is controlling the joystick the other could use the fire operated by the space bar.



Army Moves has got some fantastic music to accompany the game. It starts off by playing Colonel Bogie and then goes through various other military music. The music is so good that you almost forget about the game and get caught up completely. Instead of music you can have sound FX if you wish. They are excellent. A very enjoyable game from Imagine. If you only buy one more Imagine game in your life then make sure it's Army Moves. This is a totally Mega level game in every way.

J.A.



Price: £8.95
Graphics: ★★★★
Sound: ★★★★★
Playability: ★★★★
CCI Rating: Mega

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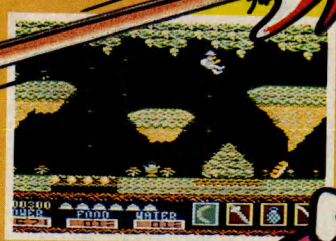

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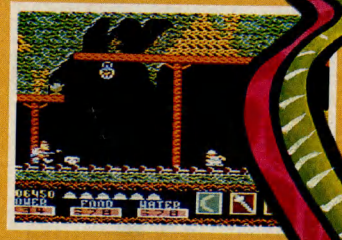
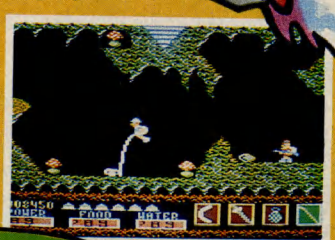
And don't let the sea eagles get you!!





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C64

CRISP

Barbarian

I don't think software houses will ever stop putting out fighting games. Ever since 'Fist,' there's been a constant flow of these games, mostly using the same control methods, with very similar gameplay. Still, I suppose it's better to hammer an opponent on a computer than outside the football grounds.

Barbarian, from Palace carries on this violent trend. Your task is to free the Princess Mariana from the evil sorcerer Drax, by defeating his guards in fierce sword fights to the death. Moves available to the Barbarian inlcude a neck chop, kick, web of death, and a flying neck chop to name but a few aggressive delights.

"...and lo, a mighty warrior shall come from the frozen wastelands of the north, and he will stand alone against the forces of darkness..."

The Book of Death

Your opponents can be killed by repeated blows to the head and body, or, by using the flying neck chop, slicing off his head with a deft sweep of the sword. If you are successful in beheading your opponent, a realistic squelch sounds, as his head bounces like a ball to the ground, where it is then kicked out of the arena by a goblin who drags away the headless body. I particularly liked this as it is very realistic (No I don't means I see many goblins kicking heads these day, I mean the effect is realistic, beautifully programmed so!).

The sprites are well defined, although the animation could have been livelier. The battles are fought in front of two backgrounds with the sorcerer and princess watching over them. On one side of the tape is a practice game with different backgrounds to give you the feel of it before you start off in earnest. There is also a two player option, fought with a time limit.

The accompanying music and sound effects are OK, but nothing special.

I would have preferred to see something original from Palace, as although Barbarian is well written, this sort of game has lost some of its excitement through there being so many of the same style. However, the packaging and presentation has got to be something which will make terrific impact. We hear, one magazine got so scared that it refused to publish the photos that Palace are using on the inlay (wimps!). As you can see, Maria Whittaker, page 3 girl, is going to make a lot of game players take a good look at the 'instructions'. Me? well I never noticed until I saw the cover of this magazine (and if you believe that, you'll believe anything!).

CCI READERS MAKE THE BARBARIAN LOOK CIVILISED!! -LEAD ME TO 'EM!!

Graphics: ★★★★
Sound: ★★★
Playability: ★★★
Rating: CRISP
Price £9.95

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ALWAYS include your name, address and the date on all material and any enclosures.
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Always ensure that disks are well packaged. They should ideally be sent in a commercial disk mailer or at least packed between two pieces of hardboard or rigid plastic.

Please allow at least 8 weeks for acknowledgement as all programmes have to be thoroughly tested and made into a suitable format.

Enclose a self-addressed stamped envelope or package if you would like your programme to be returned.

★ Programming tips ★
If you can, use CHR$(x) type commands instead of those hard to read graphic symbols.
If necessary renumber your programme on completion as many readers use auto number utilities to ease typing in.

Try to keep instructions within the programme itself as a sensible level. You can expand on them within the accompanying text if necessary.

TEST your programmes before submitting them or even better get a friend to test them for you.

If a programme contains machine code data please use decimal and not hex as there are fewer digits to be confused. Try and keep the same number of data statements in each line. Please add some form of error checking if your programme contains any more than five lines of data. There is a suitable routine at the end of this article.

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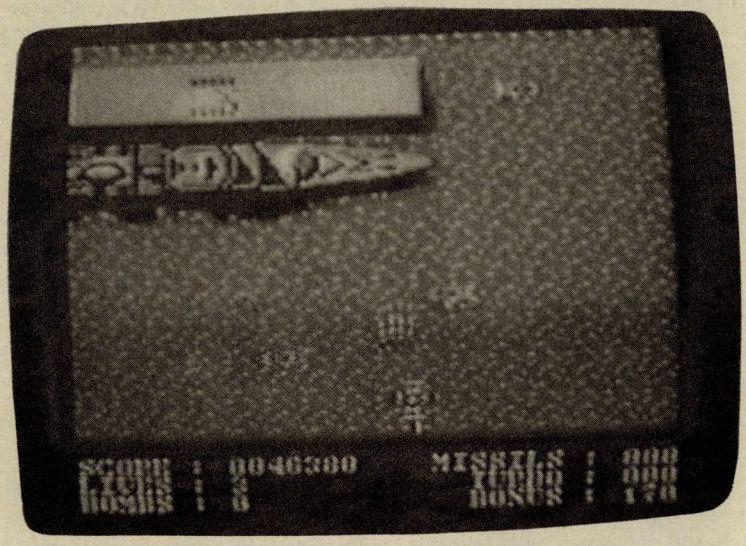
Tiger Mission — C64
Kele Line

CRISP



The helicopter seems to be the flavour of the month in games these days. True, Gunship and Tomahawk were more simulations than arcade style entertainments, but helicopters seem to have become almost a symbol of contemporary aggression. How would Rambo have reached Vietnam, and how would Airwolf have rescued the scientists? So Kele Line have chosen the right moment for launching this expertly created trend-grabber.

Your task in the game is to complete the Tiger Mission by destroying the two aircraft carriers far behind enemy lines. The action takes place on a vertically scrolling landscape, infested with tanks and guns. You must penetrate each level in your helicopter armed with short range cannons. As you progress, more powerful weapons become available, such as S.M.A.R.T. bombs and long range missiles. At the end of each level is a marker on which you must land your helicopter. If you are shot down, you lost a life and return to the beginnng of the level. This can be very frustrating if you have nearly completed a level and have to start all over again. I would have preferred play to continue from where you were shot down, as it's a hard game.

The screen scrolls downwards as you battle on and the sprites move quite smoothly. On your way you fly over land, sea, buildings and forests which are a little repetitive after a while.

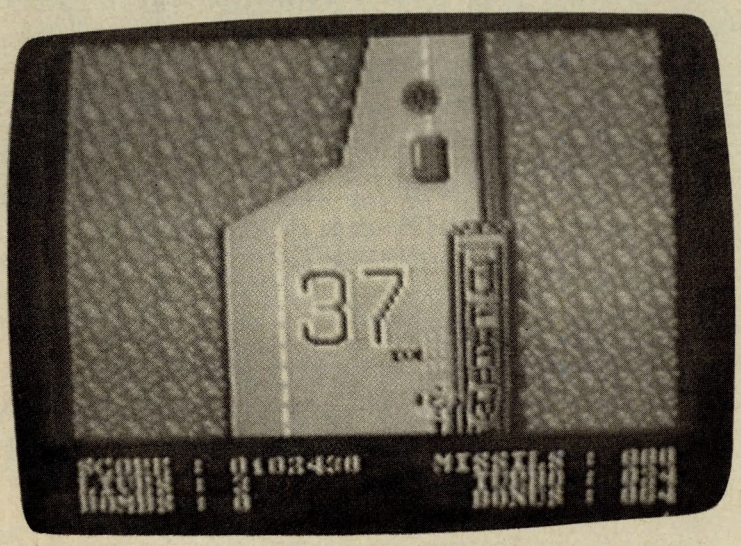
A suitable soundtrack spurs you on and seems to mimick the sound of the helicopter's rotor-blades.

A nice title screen and high score chart has scrolling in the border and a good Tiger Mission logo.

Tiger Mission is wellpresented and programmed and is enjoyable to play, but I felt the slow scrolling and the way you have to start at the beginning of the level when shot, let it down a little.

When it comes down to it, it's certainly an enjoyable game.

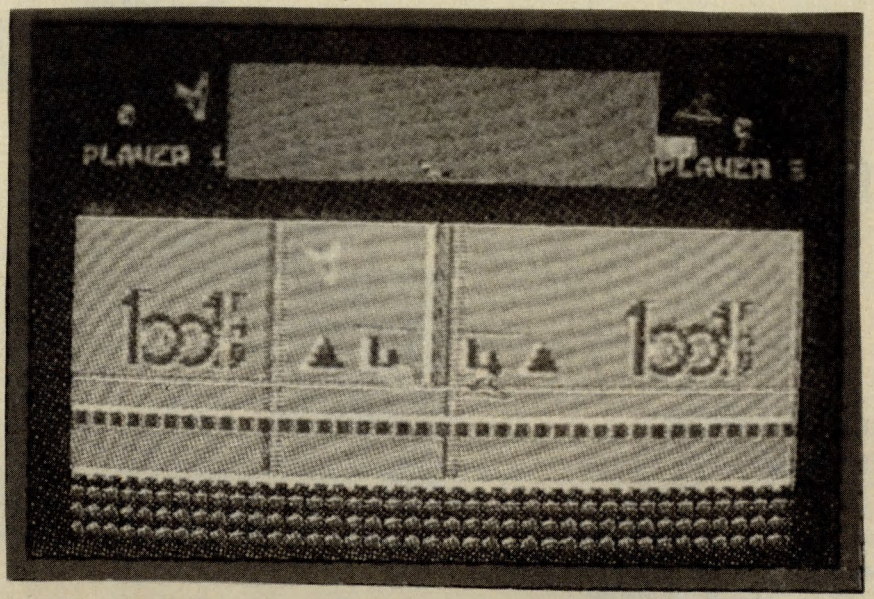
T.H.



Price: £8.95
Graphics: ★★★★
Sound: ★★★
Playability: ★★★
Rating: Crisp

C64 Hyperbowl — Mastertronic Mad Games

CRISP



The year is 3613 AD, the game, Hyperbowl, the instructions — win!

Hyperbowl takes the basic game of ice hockey and sends it into the twenty-second century with a bang. It is, (according to the blurb) the fastest growing spectator sport in the Empire. This is the first official computer simulation, endorsed by National League and contains all the features of a live game.

The object of the game is to score more points than your rival. You do this by pushing a ball over your opponents far goal line (for one point), or pushing it into the central goal. You control a ship that moves the ball by pushing it, or firing at it and it is with this that you play the game.

A choice of ten ships are available to you each with varying attributes — such as, homing bullets (not always effective) and friction. Friction determines how quickly your shop moves off and ease of control — the higher the rate, the more stable your ship.

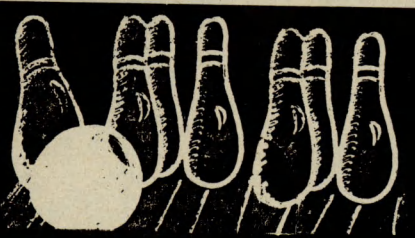
You play a tournament of five matches and must win the first to have a chance of staying in. There are three levels of difficulty and each lets you progress in skill, smoothly, allowing you to meet opponents which are difficult to beat but aren't impossibly, frustrating to play.

Graphics are good, nothing special but complimenting the game nicely and sound is average. The game itself is simple, yet addictive and when playing against someone else, great fun. This is a snazzy little release from M'tronic and is an excellent buy for £2.99.

C.K.

Price: £2.99
Graphics: ★★★
Sound: ★★★
Playability: ★★★
Rating: Crisp

C16 Tynesoft Previews



Tynesoft are pulling out the stops on their games now and have greedily gobbled up therights to Advance Software's Indoor Sports.

10 Pin Bowling is the only finished game so far and may be released singly or with Darts, Air Hockey and Ping Pong (not on the 64 version) and if the quality of the rest of them matches this they will have a sure winner on their hands.

Having seen the 64 version of bowling I can see what a feat of programming this is; Graphics are almost identical, and the way the game plays is exactly the same.

It takes four steps to bowl correctly, these are 1. positioning the bowler; 2. aim the ball; 3. controlling its curve; 4. bowling the bowl(!).

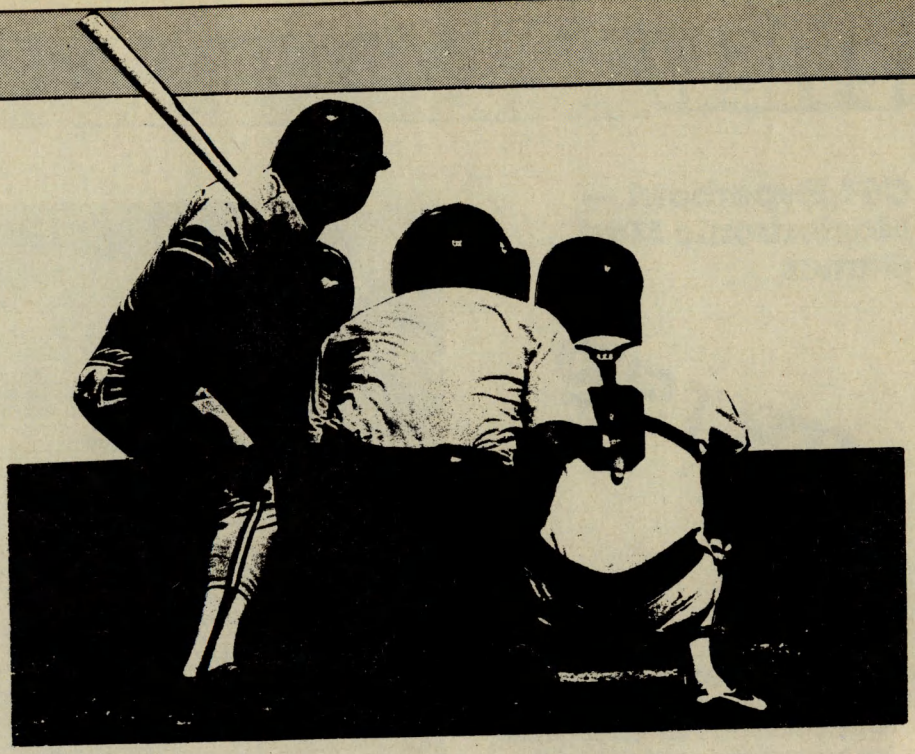
Each step must mix in smoothly with the one before it to bowl correctly, and it takes a bit of practice to get it right.

You must also take alley slickness into account — and the weight of your bowl. You can play with yourself, (ahem...) against the computer or another person, and as usual there's an excellent piece of music from Ian Waugh (and I'm not biased because he's a CCI writer either. "Cash or cheque Ian, and make it payable to...")

I can't wait until the rest of the games are complete, this alone rates Mega so together... Tynesoft are also making Spy Vs Spy which if it lives up to this standard should be outstanding. Tynesoft deserves an award for their staunch support of the C16 producing great games regularly and consistently. Their rise started with European Games, Jet Set Willy 2, Who Dares Wins II, Future Shock, Savage Island I and II, (especially worthwhile with adventures so thin on the ground on the C16), and culminating in Phantom. Their standard will appeal to C16 players worldwide.

C64

CRISP



Championship Baseball

CHAMPIONSHIP BASEBALL

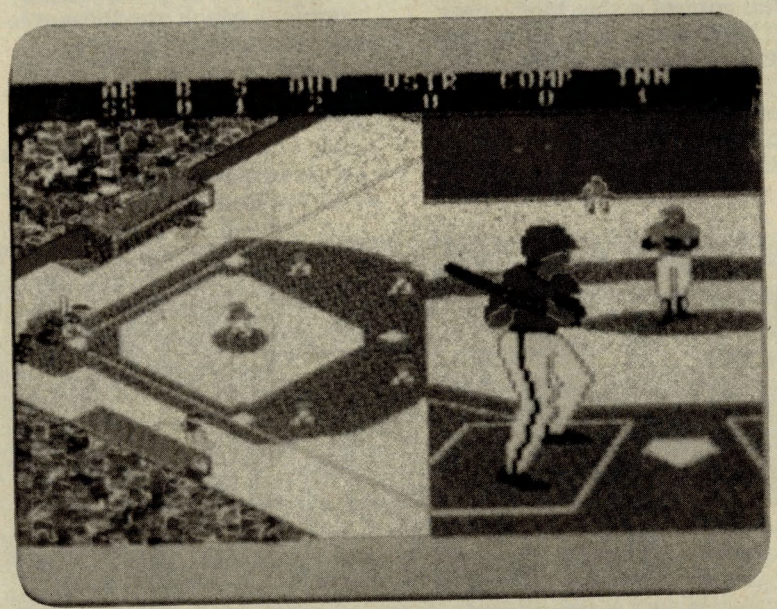
It's time to don peaked cap and breeches as we get down to a good old game of Championship Baseball. This, the third baseball simulation to hit the '64 features a split screen with a view of the whole pitch and a close-up of the batter and pitcher overlaid on the right.

On loading, you must decide whether to practice or enter a competition. In practice, you have a chance to perfect your batting skills. The pitcher can choose from a variety of balls, to which you must adjust your swing, if you decide to hit it. It is very hard to whack the ball, as the timing must be absolutely accurate, so it is much easier to miss than to score.

And hitting a homer is a real achievement. You can, however, simply defend by 'bunting' — just tapping away at the ball.

After practice, you can either play a one or two player game. If you select one player, you can then decide whether you want to play in a competition or play an exhibition game.

The players are displayed in very large, beautifully animated graphics on the close-up view, rather like Accolade's baseball simulation 'Hardball'. Unfortunately there is hardly any sound in the game, just the roar, or should I say hiss, of the crowd.



Championship Baseball is a disk based game which needs quite frequent accesses. They don't take too long, but if Activision decide to bring out a cassette version, it could be very tiresome.

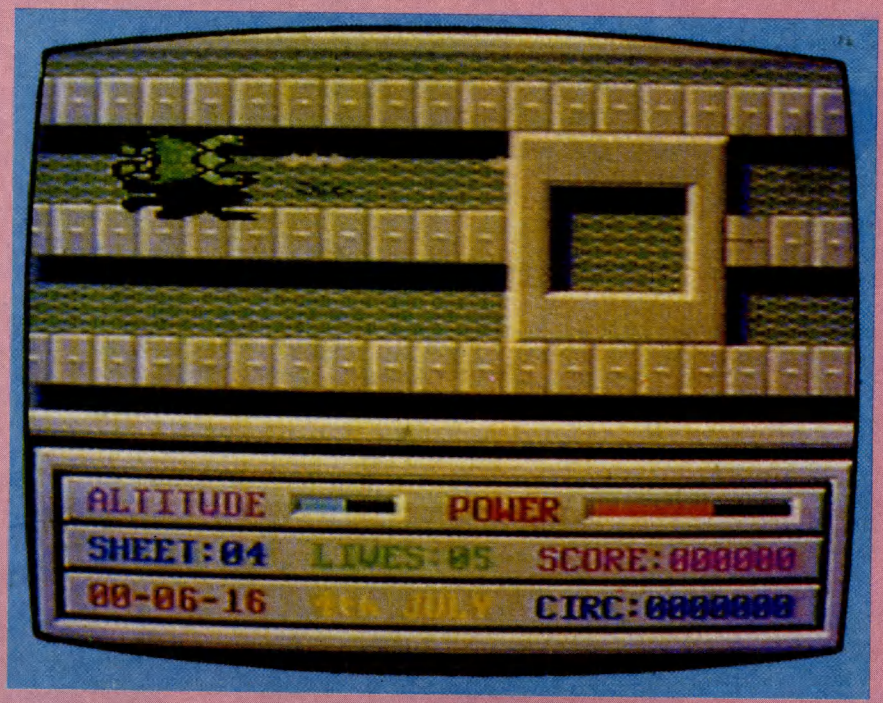
Championship Baseball is an enjoyable game, although I did find it rather hard to hit the ball very well. Worth a look, though.

T.H.

Price: £14.95
Graphics: ★★★★
Sound: ★
Playability: ★★★
CCI Rating: Crisp

MEGA REVIEW

MEGA



Oink — CRL C64

Oink! — ghastly word isn't it? — is as everyone (!) knows a real life comic that has reached terrific popularity. No wonder that CRL decided to use the idea for a computer game. What, they must have asked themselves, shall we do with it? They were very clever and took the idea and made it into the actual production of a comic. You are therefore Uncle Pigg, "the porky proprietor of the world's funniest comic". And it's your job to get the next issue of this global publication out on time. (If you knew what it is like at CCI Tower when we are going to press you would think chaos is a quiet word for the whole crazy process!).

Oink consists of three games. In the first you must destroy blocks with a bouncing ball and a bat which can be moved up and down the screen. Hitting a block once weakens it, and a second hit destroys it. Letting the ball past your bat results in the loss of one of your three lives. There are also nasties which come across the screen at you. These can be shot, but hitting one with a bat will also lose you a life.

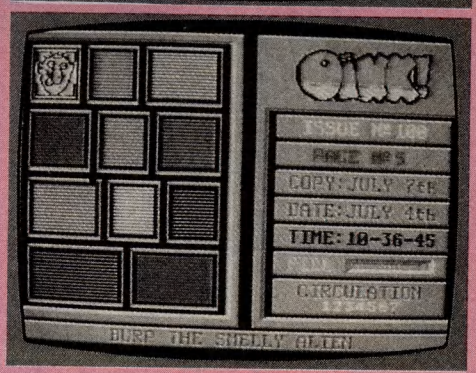
In the second game, you are 'Rubbishman' (a sort of Superman style flyer) and must negotiate each right to left scrolling zone. There are barriers which must be avoided by flying under or over them, as well as air vents, and objects that must be shot. At the end of each zone, Rubbishman's altitude becomes constant, and he can fly backwards and forwards too.

In the third game, you just guide your 'Thugmobile' around a number of screens collecting panels, keys, and extra lives. In the rooms, zombies and drones guard these objects and exits together with blocks which can be shot.

The aim of Oink is to win panels in each game which make up the articles in the comic. The whole comic must be ready in time for the printers' deadline.

Each game is displayed in very neat metallic style graphics. The whole thing has a terrific smooth feel and for programming skills must be accounted one of the very best games around. A lot of trouble has gone into this to make it so highly professional. It moves and scrolls like a dream. While it might be said that each game on its own would not be considered so amazing as to merit a full price chart topping release, put together they make up a really outstanding game — a bit like Arkanoid, Gauntlet and Uridium combined. Well almost. It has just the right level of difficulty and the sheer variety of the three games will keep you locked to your screen for a lot longer than most games you'll play this year. CRL has a winner here.

T.H.



Price: £8.95
Graphics: ★★★★★
Sound: ★★★
Playability: ★★★★
Rating: Mega

Reviews

Andy Moss' famed expertise in solving mind stretching adventure games is legendary. He regularly comments in C.C.I. on all the many and increasingly popular aspects of adventure.

Comment

Good tidings from Middle Earth once again my friends and to another action packed delve into the world of Adventure. I've been hard at it working my way through four role playing games in time for this issue. It is all the more interesting, as it seems that a lot of you from what I see from my postbag, are enjoying Ultima IV, and seem to take to role playing adventures more than the traditional story/puzzle variety. If this is the case then I seriously suggest you take a good look at the new role players before you buy, as some do leave a lot to be desired. Do not expect all of them to come up to Ultima standards, and take absolutely no notice of the packaging, as nine times out of ten, a lot of poetic licence is dished out. Insist on sampling the product first, or of course refer to us at CCI before deciding. With this in mind most of this month's reviews section is devoted to role players as promised last issue, and I have tested three SSI games, and one from the Ultima stable — Origin Systems. These games are not yet on sale in Britain or Europe, but have been around the USA for a while, and are expected here before the end of the year. For all you non role players, don't fret as there are a couple of other adventures reviewed along with my usual spot so read on...

ROLEPLAYING SPOTLIGHT

SSI and Origin Systems

There is no doubt that Dungeons and Dragons was the inspiration behind Crowther and Woods original masterpiece Colossal Caves, or Adventure, or even Advent, depending on which computer you played it on. It had a variety of names but was always the same game, because it was the ONLY game of its kind. Now of course we are lucky enough to have plenty of adventures to choose from, but they are all in essence hybrids of that great classic. But what of D&D? It started as a form of relaxation in America, where people could come home from work or study, get together, and transform themselves into another world of danger and heroes. No board, no pieces, just their minds, a book of rules, a dice and good Dungeon Master to create the scenario and construct some ingenious puzzles. Soon it caught on in a big way, and then competition started, in the form of Tunnels and Trolls; another spin off, same concept, different rules. It started to get very complicated, with detailed facts on characters needing to be kept, as some games lasted weeks. Boards were introduced, along with small figures to represent chosen characters, and a lot of spell casting and paperwork was needed. With the advent of home computers, the scenario changes, to allow solo role players the chance to go it alone, with the computer keeping automatic track of hit points, health, gold and treasure, not to mention carrying out the Dungeon Master duty at the same time, and actually driving the adventure.

Role playing is big in the States, and is quickly catching on over here; so much so that top software companies, never ones to miss out of a potential market, quickly brought over some of the best computer roleplaying games, like the Ultima series, Epyx's Apshai trilogy, and The Bard's Tale. All good products and all sold very well. SSI realising the growing market for this product, diversified from war gaming to produce a new label dedicated to D&D. Role playing adventures are rapidly taking off over here, make no mistake, but just as the arcade market deteriorated through too many releases, the same could happen with this.

With this in mind, I played four new games, with a view to seeing just how much they have improved on the old Ultima favourites.

The first is WIZARDS CROWN from SSI. This game has you in charge of a band of characters, (which can be created, or you can use the ready made party) in search of the Crown of Knowledge, hidden somewhere in the ruined city of

Arghan. The graphics are pretty mediocre, just a maze like screen for most of the locations, with the odd grasslands thrown in here and there. The worst part of this system, is the time it takes to create a character disk, and a dungeon disk which you must do before playing. Each disk takes 20 minutes or more to prepare, very tiresome and very frustrating. Most of the memory seems to have been taken up with the battle and intelligence routines, as the graphics as mentioned are poor, with your party displayed as little stick men, moving very jerkily around the screen. It gave me no sense of realism at all. The actual fight routine, is very complex, and involves a great deal of tactical combat, in fact there is a section at the back of the handbook solely devoted to attack and defence strategy.

MIND ALONE SHALL SURVIVE FOREVER!

...ture!!

This game is not for the novice adventurer, and should be avoided unless you have great patience or a lot of previous experience. Also there is no joystick option available which is a great nuisance.

RINGS OF ZILFIN is another matter entirely, as this game is more of an arcade system than anything else. More memory has been devoted to the graphics than gameplay here, as you journey as a solitary wizards apprentice through hostile lands in search of the legendary Rings. The game features a scrolling landscape, and large animated creatures, that move smoothly around. The characters you meet, will hold clues as to your next move, and as you progress you will become stronger by finding magic plants and learning new spells. A game for younger players I feel, but an enjoyable romp all the same.

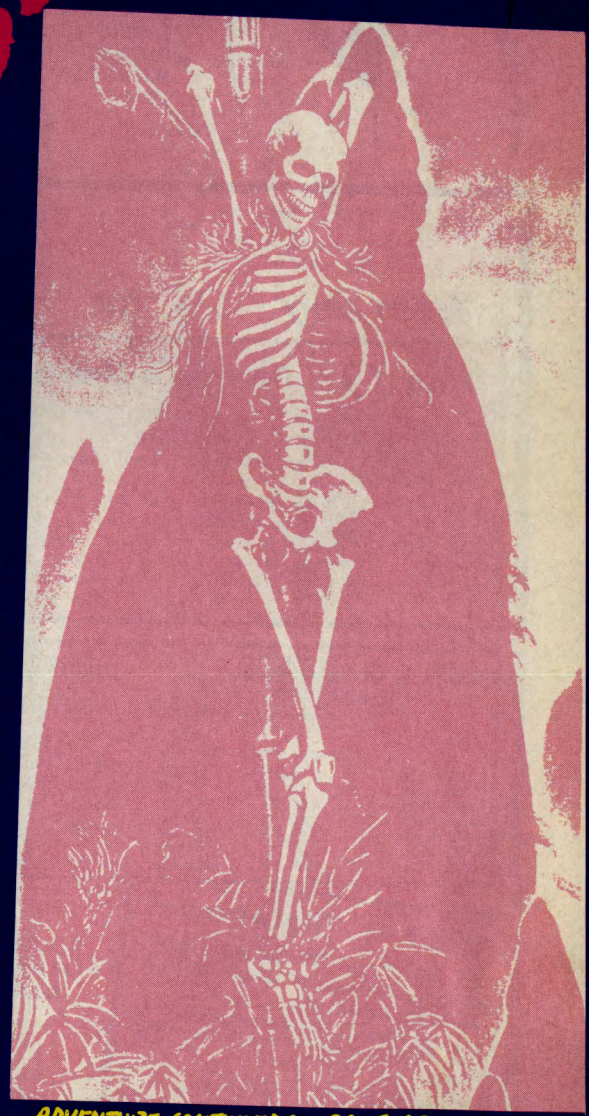
SHARDS OF SPRING the third SSI release, is by far the best of the bunch. It is the usual story of a quest to find the lost Shard of life, and lets you assemble a party of five adventurers, human, troll, elf or gnome, to explore the vast landscape and deep dungeons of this dangerous land. The combat sequences are good, giving you a close up picture of your surroundings, along with your chosen monster. Plenty of sound effects abound, with some good clashing of steel, and wailing on a death of a monster. Ease of use is a paramount feature here, with all your party's attributes easily accessible and each particular skill obvious to the player. My party fared quite well until I confronted some rather evil snakes which finished me off. Still, one to recommend.

Lastly, **MOEBIUS** is from Origin, and is written by Greg Malone, one of the creators of Ultima. This is a Martial Arts role player, which chronicles the search for the Orb of Harmony.

The main difference in this game, is that you have to learn three disciplines, sword fighting, hand to hand, and divination. It will not let you into the game, until you have mastered each discipline. This alone will take many plays, but once you are proficient, it gets written to disk so you are saved doing it allover for that character — unless he dies. You travel the land, and the screen does an update as you go, instead of scrolling, so a little irritating that. The encounters are frequent, and can be very costly in terms of energy. The whole game has a very atmosphere feel to it with some very pretty music to accompany your learning. The actual combat is an arcade sequence where you have to bash the other bloke before he bashes you, and is the only part I found boring and slow.

Definitely not up to Ultima standard, in any way, and that really goes for the others barring Shards of Spring.

All in all a disappointing collection, that shows me that role playing computer games haven't advanced much in the last two years, and however glossing sounding the box is, test them out first. You have been warned.



ADVENTURE CONTINUED ON PAGE 69

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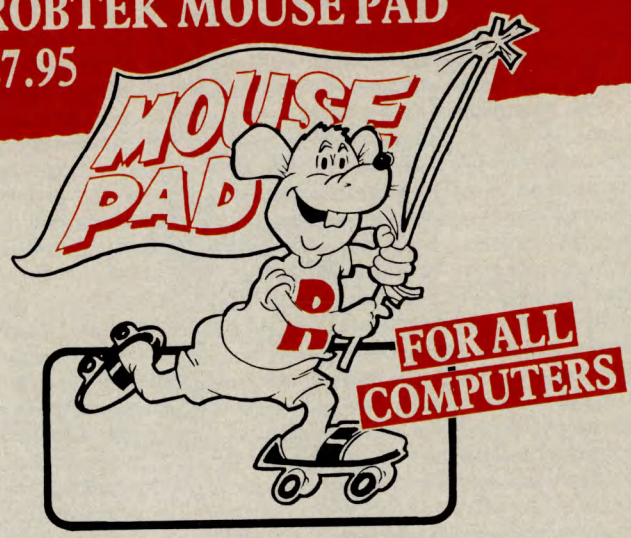

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MIND FOREVER VENTURING...

CONTINUED FROM PAGE 67

Letters

Dear Andy,
Thanks for your help on Ultima IV in last month's CCI. I am now level 7 and I have got virtually everybody to join my party,and I am now firmly on the path of completing the game. If anybody needs help, I have found: The Nightshade, Mandrake root, bell book, candle, skull, wheel, horn all runes, the green, white, and black stone, the lighter than air device, the word of passage, and I know where to find the mystic weapons and armour. In turn I would like to know what to ask Brigant the Troll and Smith the Horse, and where and what is the Codex?
Christopher Mungall, Scotland

This is strange, Peter, as I have gone back through my maps of Ultima and I can't find any mention of Smith or Brigant, I didn't find them in my playing of the game so take it that they are not necessary in completing the quest. As to the Codex, well, it is found in the great Abyss, where only the strongest and those blessed with all the virtues will survive, go there and you'll find out what it is!!

A.M.

Dear Andy,
Please could you help me on my two Brian Howarth adventures, Time Machine and Golden Baton. In 'Time' I have got all three prisms, cannot do anything with the metal plate,and the police box. In Golden Baton, I can't feed that old fussy crab who won't eat slugs. I've tried pickling them but the computer says "I can't do that just now", please give me the word to use. Thank you, you are my only hope, mercy!
S. Hector, N. Devon

Ah I remember them well, dear old Mysterious Adventure series, how I miss you dear friend. Fear not Mr Hector the cavalry is here. In Golden Baton, you have to SALT SLUGS then feed crab, and in Time Machine, fit the prisms into the empty sockets, which will allow you to travel back and forth.

A.M.

Dear Andy,
I was wondering how in Savage Island it is possible to put the salt water into the rum bottle after the rum has been poured into the stone basin in the cave, as I either get eaten by the bear or drown carrying the bottle in the lake. Could you also tell me if there will be any more Plus/4 adventures released on cassette.
Yours Thomas Reid, Renfrew, Scotland

Come on Thomas! Think, just go to the lake when you have the bottle of rum, drop it on the edge, and drop your watch also, then enter the lake, and get the plastic block and the knife while holding your breath. Now you can return to land, get the bottle and pour the rum into the basin and refill it with salt water. The water will see off the bear. Now let's see if you can finish it eh? As far as some new software for your Plus/4 goes I am afraid the future is bleak if it is Scott Adams games you want as he sadly went out of business in the States, let's hope that some home grown games are coming. Check with us 'cos we'll know first.

Hi Andy,
This is a brief cry of help from Sweden. Over here many people are struggling with Infocom games especially Zork I. I am completely and utterly stuck. The playing time they put on the back of it of 30-40 hours is a cruel joke to me now, after all these weeks. You have a great responsibility to shoulder here as I and many others will not play another adventure if we can't solve Zork! How do I get up or out of the Torch Room? Is there a way from the Thief's room? What are the Granite Walls? What do I do with the Trident and sceptre? Can I get to the pot of gold by the rainbow? How do I get into the dark room in the coal mine? Is there a way out of the studio with all the paint? ... OK I'll stop here, just give me hint, bye and thanks.
Soren Nylin, Sweden

I can see it now, all over Sweden people are clamouring for help, can we save them, it's almost like a plot for an adventure! In all fairness Soren to give you all those answers would spoil the game for all the other readers, so what I suggest is to write to Activision at 23 Pond Street, Hampstead, London NW3 2PN and ask them for an INVISICLUES book for ZORK I which will put you out of your misery. Tell them Andy sent you!

A.M.

Dear Andy,
Regarding Dracula, from CRL, could you tell me how to progress past the shaving mirror incident in Part 2. I always endup cutting myself resulting in the Count killing me. Also my computer will not save games even though I have checked the leads and connections on the datasette. What's wrong?
Ian Mcloughlin, Essex

As you're feeling so cut up about it I'll tell you. First examine the table, and you will find a tray, get it, and go to the Dressing Room; where you will find a cloth. Polish the tray with the cloth and Viola, you have your mirror, so no more cuts! As to your saving problem, it sounds tome like your tape head is badly aligned so get it checked out.

A.M.

Adventure News

The Big Sleaze

THE BIG SLEAZE is the title of Delta 4's new game which will be a three part adventure with graphics andis set in New York City in the 30's. You play the part of Sam Spillade (a sort of parody of Marlowe, Mike Hammer and Sam Spillane rolled into one) and have to crack a variety of cases inbetween eating Danish pastries and dodging paying bills. If you have played Murder off Miami, you'll get some idea as to the game's layout, as it was also written by the infamous Fergus McNeill, and there are similarities in the plot and design. I have played the first 30 odd moves in the game which opens in Sam's sleazy office, and can tell you that the Delta 4 spirit is still very much in evidence.

Bards Tale II

Remember The Bards Tale? Well, Electronic Arts have released a sequel entitled BARDS TALE II — The Destiny Knight, and it has again been programmed by Interplay Productions. Bard II is fifty percent larger in code size than its predecessor, and revolves around your attempts to halt an evil force threatening to destroy the entire realm. The Destiny Wand has been stolen, broken into seven pieces and hidden in different locations within the Realm. You have to form a party, and find each piece to make the Wand whole again. Your prize is to become a Destiny Knight. The game is

CONTINUED ON PAGE 70

MIND FOREVER VENTURING...
CONTINUED FROM PAGE 69

currently only available in the USA, but as Electronic Arts have at last established a London Office, I am sure it won't be too long before Bard II hits these shores, and guess who will have a copy?

Phantasie III

PHANTASIE III is about to be released, sub-titled The Wrath of Nikademus, where at last your brave band of adventurers after two other quests finally come face to face with old Nik himself. The game boasts improved features such as a detailed method of handling wounds, more strategy and combat options enhanced graphics and best of all an increased playing speed (hooray). I have thoroughly enjoyed the previous two games so a lot to look forward to I feel.

Three Electric Novels from Broderbund and US Gold

In the wake of PORTAL that fabulous games from Activision, comes news that hot on its heels are three "electronic novels" care of Broderbund and US Gold. Each title comes complete with its own hard bound novel which has been especially written for the computer. MINDWHEEL allows you to time travel into the minds off four deceased geniuses, ESSEX is an adventure of intergalactic search and rescue aboard the collossal starship Essex, and BRIMSTONE gives you the chance to relive the ancient adventures of the Albion Manuscripts and to travel into the underworld. At £24.99 each, they are a bit pricey, so read my review first next issue.

Jack the Ripper

The ladies of St Brides are not known for serious adventuring, more for spoof games, so it is surprising that they have decided to write a terrifying adventure based on JACK THE RIPPER. Discovered near the scene of the latest gruesome murder, you are the police's prime suspect. Your task is to convince the police that you are not Jack, by tracking him down yourself. It is a great plot for a detective adventure, and sounds like ripping fun.

Mindscape on 64

Great news for all you people who are envious of those lucky Amiga owners who can play Mindscape adventures, as they will soon be available for the 64. Some truly great titles like DEFENDER OF THE CROWN, SINBAD, KING OF CHICAGO, DEJA VU, UNINVITED and SHADOWGATE will be available through Mirrorsoft during 1987.

Murder on the Atlantic

Infogrames has announced a follow up to Vera Cruz and Sidney Affair, entitled MURDER ON THE ATLANTIC, and as the name suggests is a crime thriller set on board a transatlantic crossing, just prior to the Second World War. In the box is a wealth of info which could either be clues or red herrings. With Murder Off Miami already out and the Big Sleaze about to be released things could start to become very complicated indeed.

Killed Until Dead US Gold £9.95

This is a great game. Remember Cluedo? where you had to name the murderer, the weapon, and the place? well here is a game that is based on just that, but involves so much more. You are Hercule Holmes, detective extraordinaire, and you are at the Gargoyle Hotel for a festival of mayhem. The world's four finest murder writers are there, collectively called The Murder Club, and they are planning to commit the perfect murder, by killing one of their own. You have just twelve game hours to find the suspect and confront him/her with the place the weapon, the time and the motive. To help you, you have at our disposal a vast array of surveillance equipment, to monitor the characters with, and by breaking into their rooms (you need to answer a general knowledge question to get in) you may discover vital clues and information. There are phone calls to be made, interrogations to undertake, and meetings to tape

GREAT FUN WORTH EVERY PENNY! A.M.

with your hidden recorder. A great sequence is when you interrogate a suspect, and you get close with your questions, the face graphic changes accordingly, and by skilful use of this system they will get so flustered that a clue will come out. With multi levels of difficulty, and a variety of cases to solve, this game although not an adventure in the true sense, is great, great fun and worth every penny.

Personal rating 9

That's all for this month, back to the traditional text/graphic stuff next issue, with a good look at Shadows Of Mordor — Lord Of The Rings II, The Big Sleaze, and a whole lot ore, including a HELP SPECIAL with a whole host of hints, so don't miss it. See you next month.

Adventure

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The Curse of Sherwood — Mastertronic

IFFY

Prepare to enrol yourself as Friar Tuck in this new arcade adventure from Mastertronic. Along with Robin Hood and the other faithful followers you face the toughest challenge of your life.

Sherwood Forest has been taken over by the no-gooders of the Cult of Sagallia. The forest dwellers are now fearing for their lives. It's your task to get ride of the cult and restore peace to the forest. The priest of Sagallia has put werewolves in the forest and animated skeletons to keep guard. You and Robin were going to try and rid the forest of the cult via exorcism, but your counterpart, the Bishop of Derby failed to turn up and later you found him with a rhyme pinned to him with a black arrow. The rhyme holds the clues. You must follow the clues and destroy the cult before it's too late.

Curse of Sherwood is a maze game that has many screens. The layout is not dissimilar from Henson's 'Firelord'. Some of the screens are fast but some are dead slow. The graphics are small but they are very colourful. The sound is only spot effects. The screen is split into two parts. The top third shows your score, objects held, your current weapon and the number of lives left.

A reasonable 'cheapy' but not MT's best.

J.A.

Price: £1.99
Graphics: ★★
Sound: ★
Playability: ★★★
CCI Rating: Iffy

Killer Watt/ Hyper Circuit —Budgie

This is a cheap double pack from Budgie. Frankly between you, me and the bed post they shouldn't have bothered! Neither game lives up to the impressive titles but Hyper Circuit does have a couple of redeeming factors.

KILLER WATT

You must fly through the depths of the underground caverns blasting everthing and anything that gets in the way. Your ultimate task is to find and destroy twelve light bulbs that are hidden in the caverns.

The graphics are bland and unimaginative. The scenery is gaudily coloured and blocky. The sound is awful. It's terribly repetitive and had me reaching for the volume level after less than a minute.

Not a game for the weak hearted.

Price: £1.99
Graphics: ★★
Sound: ★
Playability: ★
CCI Rating: Naff

HYPER CIRCUIT

Hyper Circuit is still not a fantastic game but it is a great deal better than Killer Watt. The graphics are large and detailed and there are some good spot FX.

The writing on the intro page is good but may be a little difficult to read. When the game has finished an impressive "Game Over" swirls across the screen. The game itself is somewhat unusual. You control the inside of your computer and it's your job to rid the micro of any intruders. You travel along the printed lines of the circuit board, and you must blast anything that moves before it blast you!

A different game but won't appeal to the game connoisseur for very long.

Price: £1.99
Graphics: ★★
Sound: ★★
Playability: ★★
CCI Rating: Iffy

Aftermath — Power House

DODGY

"In the aftermath, the Saurans rule unchallenged. Death appears inevitable. No one has returned from the Strategic Command Centre, although it is doubtful they ever got through the dreaded discs of death and the impenetrable Veloscraft. However, there is one last lone scurving freedom fighter who cannot accept..." So goes the blurb for the game. What a load of RUBBISH. A longwinded storyline meaning, nothing to anybody, just to cover up for this game, which is an incredible rip-off of US Gold Xevious.

You must fly forward, up the screen beating off attacks from the Saurans which come at you in the form of discs and other shapes. Just in front of your ship you have a crosstrain which is the aim for your bombs; which you activate by pulling back and pressing fire on your joystick. You fly over buildings and weird patterns shooting and bombing, shooting and bombing, shooting and bombing, and so it goes on — sound boring? Yes? it is — very.

It wouldn't be so bad if there were some variety... You can see the programmer, David Cooper, has lots of talent, just waiting to be used to the full — but it is just a very bad copy of Xevious that is slow and tedious.

I must admit though the the graphics are good in places, and to give you extra value for money, a song is thrown in on the tape as well. What's like? Well some people will like it? Some people even like Sigue Sigue Sputnik!

C.K.

Price: £1.99
Graphics: ★★★
Sound: ★★
Playability: ★★
Rating: Dodgy

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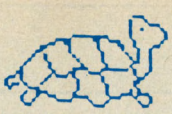

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COMPETITION

But *not* for games!

Hey folks, this is Super Felix talking. Those absolutely wonderful people at good old Mastertronic are selling some terrific non-games. How do I know? Because they have the truly excellent taste to sell videos including one of — yes you guessed it — the supreme cat of all time your very own darling Felix. They are also offering to the no doubt terrifically grateful public some amazing (do-re-me-so-far-so-good!) goodies.

AMAZING MAS
(yes it's really

So watch out in those shops all over the globe marked £1.99 for videos. Marked Master Vision and Music tapes called — you guessed it! — Mastersound (aren't those Mastertronics brilliant?) And just so you don't forget to look for (plug, plug) Mastervision and Mastersound, those sweetie pies at Mastertronic are giving you fantastic CCI readers millions of goodies. Well almost millions — 9 videos and 50 cassettes.

COMPETITION 1

You can win a video of your lovely Felix or if you've no taste one of 'Triumph of a Man Called Horse' (cowboys and lots of Indians!) or even 'Gone in 60 seconds II' (which I'm told is a truly exciting car chase style detective movie not a reference to other Commodore rags!) We've 1 of each to give anyone who can tell us:

What does Felix mean in Latin?
(Terrifically important question this!)
Who played a Man called Horse?
What implement does Father Time carry?
First 9 correct out of the comp sack (by August 15)
(name the film you want - you may be lucky if you ask for Felix!)

TER VISION AND MASTER SOUND Mastertronic!) COMPETITION

COMPETITION 2

Competition 2
We have 10 cassettes each of Mastersounds totally, totally marvellous listening which will drive you absolutely crazy with delight I'm sure!
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First 10 correct out of the comp sack (by August 15)

All you have to do is tell us:
Who were the 'Fab Four'?
Who was 'The Groaner'?
Whose first names are Francis Alberto?
Name a country singer with money to his name . . .
Who sang with the Wailers?

Answers on a postcard, please, to Mastervision or Mastersound Competition, CCI. Who ever doesn't enter will find me miowing outside the window all night long! Bye from your loving Felix (I love you too, Mastertronics specially you, gorgeous Jo Meads!)

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C64 Zone Ranger — Firebird

CRISP

Zone Ranger, like Park Patrol, is another Activision game and is the forerunner of many more. Hopefully this will boost Firebird's own flagging range of games, none of which (except Thrust, their best ever budget release) are really exceptional.

You have been appointed a Zone Ranger and your employers, the Cosmic Garbage Clearance Company, expect you to fulfill the task of ODD (Oribital Debris Destruction). In other words you're a future garbage man cleaning up the spaceways. But all is not what it seems — all the obstacles you must destroy are dangerous to you so you must blast them.

Dangerously unstable satellites try to collide with you, meteors need to be blasted more than once to avoid them properly. But all is not lost you have warp holes which transport you to safety in times of trouble and sparklers which make you indestructable for a while.

You can get nto an inner sanctum which is a kind of maze. The inlet says something about you getting help in there but it's so vague you haven't a clue what to do, except fly around.

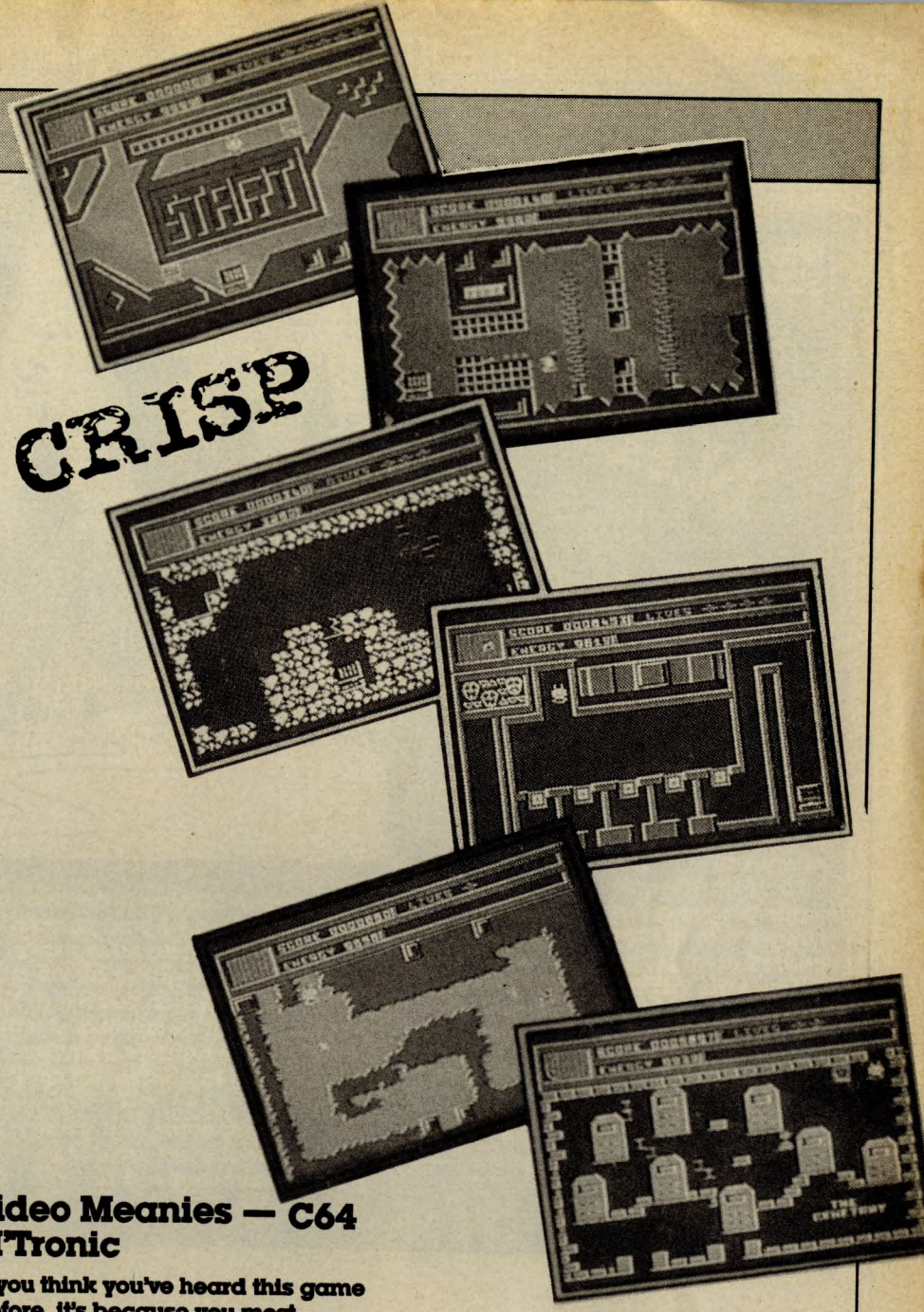
There is also a gateway to level 7 where the unstable satellites fire red beams at you. Boomerangs also appear, these are android-like heads which ALWAYS come back unless shot.

On the demo of the game there were other meanies to blast but I haven't got that far yet.

You fly around Asteroids style and at first you might like this game a lot but wears thin after a few hours. It is still a fun game though and good value for money and lot better than Firebird's usual offerings.

J.A.

Price: £1.99
Graphics: ★★★★
Sound: ★★★
Playability: ★★★
Rating: Crisp



CRISP

Video Meanies — C64 M'Tronic

If you think you've heard this game before, it's because you most probably have seen it in the C16 charts for a while. For this game, like P.O.D. has been converted to the 64 from the '16.

It places you in the role of a maintenance robot, in a crazy millionaries video shop. You must turn on all the videos in preparation for the days work. All you have to do, to do this is touch each of the fifteen videos. Sounds easy doesn't it? Well let me tell you that it's not! It will come as no surprise to you I'm sure when you find that some videos are locked up with the key thrown away in almost inaccessible places.

Meanies — the very word sends shivers up my spine, as I imagine them, killing me, again and again. No matter how many times I try to survive their onslaught — I get killed again. Getting keys isn't easy either — they are all protected by beams of the dangerous kind — yes, you guessed it, they kill you just like everything else in this game.

When you actually get to turn on a video you are given the option of gambling. If you agree to gamble a screen appears with a list showing what you can win. A bar flashes down beside them, and where you stop it you get the reward shown, these vary from two lives and a load of points to death!

The game is presented and executed very well and has gone onto the 64 with improvements in everything. Well done M'tronic for a smart little game.

C.K.

Price: £1.99
Graphics: ★★★
Sound: ★★★
Playability: ★★★
Rating: Crisp

Vampire — Code C64 —Masters

NAFF

You are Brok The Brave (who are you kidding?) and you live on a top security planet called Hawkland. Your life has become the same boring routine, day in day out (not like working at CCI where everything is crazeee!). One day out of the blue comes the opportunity to save the Earth from Dracula and the vampires.

To destroy the Count you must battle your way through the murky atmosphere of Earth and reach the Count's castle. Once Brok has entered the castle the only way out is up. (That's life, folks!). Once you get through to the surface nothing is easy. You get teleported into deep space where you face your final task, using your jet pack and lazer bolts. Vampire reminded me very much of Jet Set Willy. It's got 95 different caves.

The screen display is divided into two. The top ⅔rds is your playing area and the bottom third shows your power/energy and all the other relevant information you need. The graphics are quite small and one colour; they're hardly adequate. The sound is very limited to just spot effects.

A pretty run of the mill game that's not really got anything special to recommend it. J.A.

Price: £1.99
Graphics: ★★
Sound: ★
Playability: ★★
Rating: Naff

C64 Void Runner —

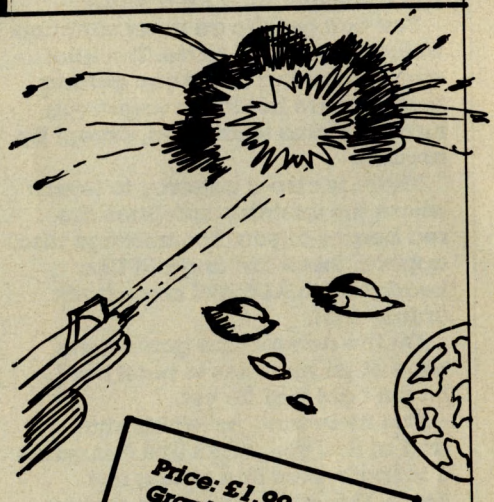
CRISP

So you thought Matrix signified the end of the wars did you? Thought that after Gridrunner and the Matrix that you'd ended it eh? Well you're wrong! If you can get more money why not make another in the series — call it Voidrunner so it seems like your in a void, not a grid, and release it twice — the second time at budget price? That way you've made just about everybody buy at least one of your games, and can go on holiday every year for the rest of your life. Now I've got that off my chest let's get on with the review.

During a routine scan of the planet Void, Droids were found getting ready to nuke Earth. You and three other crack pilots have been sent on a mission (codenamed Voidrunner) to wipe out the Droids.

Voidrunner was not long ago released on the C16 and I gave that a Mega-Review but as you must expect a game on the C16 isn't likely to be so great on the 64. However, this is a very good game and at £1.99 should sell very well.

It's fast, it's mean, it's addictive and it's cheap — what more could you ask of a shoot 'em up? Graphics are fast, if a little simple but the sound is nice and loud, even when you stop shooting! I don't recommend this game to adventure lovers as it is totally mindless, the only problem is how many more aliens to the next level. Great value. C.K.



Price: £1.99
Graphics: ★★★
Sound: ★★★
Playability: ★★★★
Rating: Crisp

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REPORT ON FINDINGS

Action Replay Mk III is more powerful, more friendly and will back up more programs than any competing utility by taking a 'Snapshot' of the program in memory so it doesn't matter how it was loaded... from disk or tape, at normal or turbo speeds... the results are the same – **Perfect!! Amazing!!!**

STARBASE UPDATE

- Simple to use: just press the button and make a complete backup: Tape to Tape, Tape to Disk, Disk to Disk, Disk to Tape. – THE PROCESS IS AUTOMATIC – JUST GIVE THE BACKUP A NAME.
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Compare these (accurate!) figures for some rival backup systems:

SYSTEM	LOAD TIME	PROGRAMS PER DISK	CARTRIDGE REQUIRED?
ACTION REPLAY MK III SAVED WITH NORMAL TURBO.	25 SECS	THREE	NO
ACTION REPLAY MK III SAVED WITH WARP*25	9.8 SECS	THREE	NO
FREEZE FRAME (MK IV)	40 SECS	TWO OR THREE	NO
FREEZE FRAME (LAZER)	25 SECS	TWO	YES
EXPERT SYSTEM	30 SECS	THREE	NO

All purchasers of Action Replay III will receive WARP*25 FREE with their cartridge. Existing Action Replay III owners can obtain WARP*25 Disk turbo by sending £2.50. post free. (No need to send your cartridge). OR obtain it FREE on the Enhancement Disk (£7.95).

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100% Success? Rival Claims? Who's Kidding Who?
Action Replay Mk III will backup any program which any other cartridge can backup – and more! It also has an unmatchable range of features. Consider 'Freeze-Frame' for example, which uses more disk space, saves at slower speed, has slower tape loader, has no built in disk fastloader, no picture, Sprite or restart features and costs £10 more than Action Replay. So who's kidding who? Buy Action Replay Mk III. If you find that it does not live up to our claims return it within 7 days of receipt and your money will be refunded.

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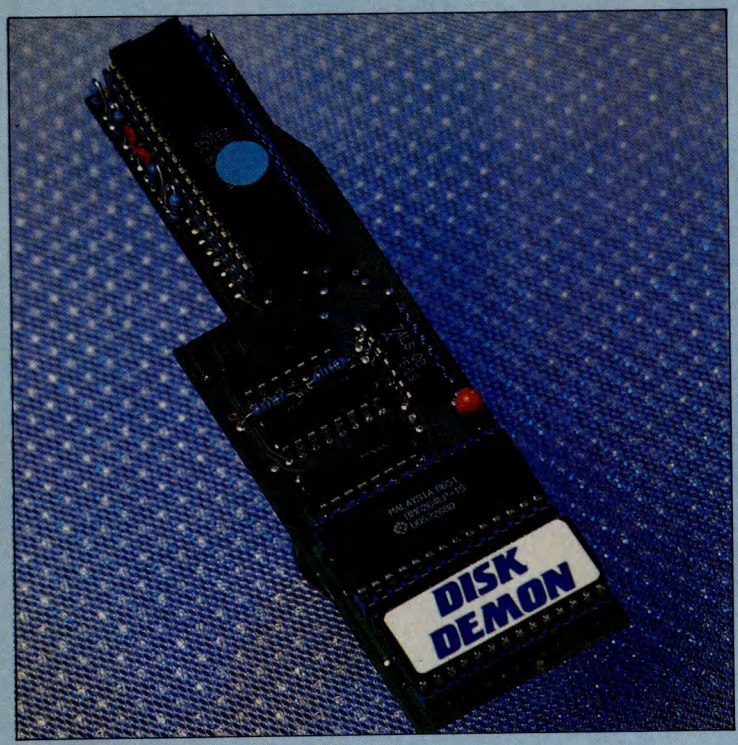

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- ❑ Easily fitted – Disk Demon plugs inside the 1541 and the new operating system chip plugs inside the C64/128. Fitting takes only minutes and usually requires no soldering.
- ❑ User port throughbus supplied free – you could pay £15.00 for this alone.
- ❑ Supplied complete – no more to buy.

FAST HACK'EM ™

The Ultimate Disk Copier/Nibbler for C64/128

- ❑ MULTI-MODULE SYSTEM – ALL ON ONE DISK
- ❑ SINGLE 1541 MODULE
- ● AUTO NIBBLER: Copy an entire protected disk in 3 minutes. Automatically senses type of protection and treats it as normal data to produce working copy.
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- ● FAST COPY: Copy a disk in under 2 minutes.
- ● FILE COPY: Copy and file in 9 seconds.
- ● FAT TRACKER: Fat tracks are amongst the latest forms of protection. This mode allows you to produce a fat track on the disk.
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- ● FAST COPY: Entire 1571 disk in under 1 minute.
- ● SINGLE OR BOTH SIDES: Will copy C64 or true 128 software.
- ● C64 or 12 modes.
- ❑ 1541 PARAMETERS MODULE

This is the module that gives Fast Hack'em its power. The parameters module contains dozens of "Parameter Keys" that are used to unlock those heavily protected programs. Each parameter is designed for a particular software brand or even a particular program. Other copy programs may make strong claims, but without special parameters they just can't cope. Datel will be offering updates to Fast Hack'em on a quarterly basis, featuring 20-50 new parameters plus other improvements as they're made. Prices to be £6 plus old disk.

- ❑ 1541 PARAMETERS MODULE
- ● AUTO NIBBLER: Copy an entire unprotected disk in under 1 minute. Features auto track/sector analyzer.
- ● FAST COPY: Copy entire disk in 36 seconds with verify.
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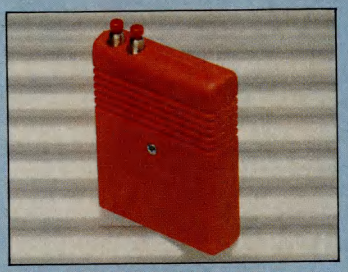
ONLY £19.99



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The Disk Utility Cartridge

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- ❑ Diskmate II is £14.99.

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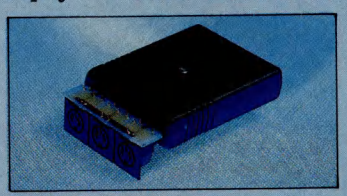

MIDI 64

A Full Midi Interface for the 64/128 at a realistic price

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- ❑ Compatible with most leading software packages including: Seil, JMS, Advanced Music System, Joreth, Steinburg etc.

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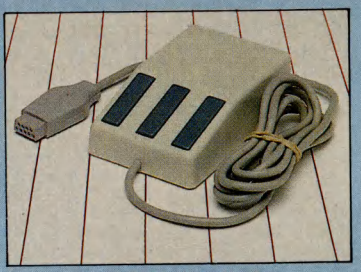

MOUSE

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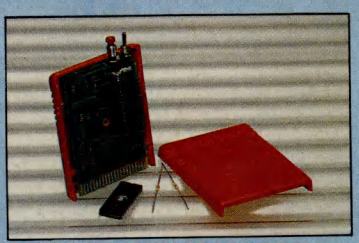

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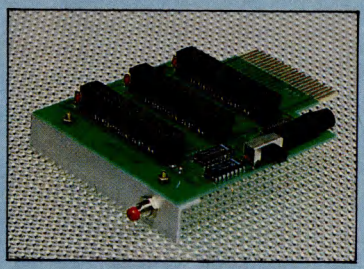

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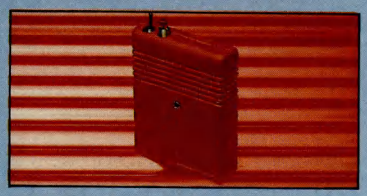

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- ❑ 100% compatible with all software.
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"For anyone who uses their printer often this chip is a must. It's quick and easy to use and the end results are impressive" – Your Commodore, Jan 87.

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- ❑ Plus lots more.
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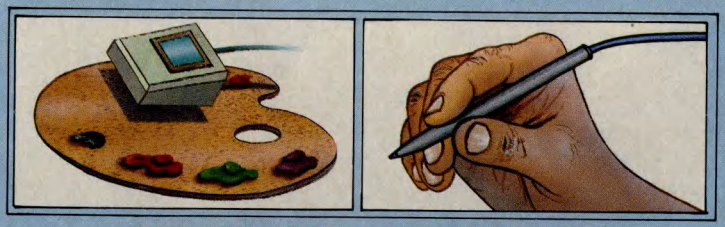

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including hardware/software/ mic etc. (State tape or disk)

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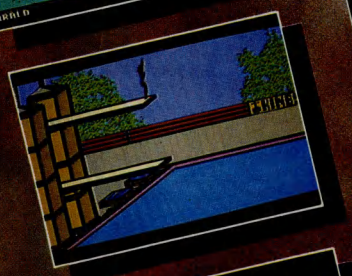
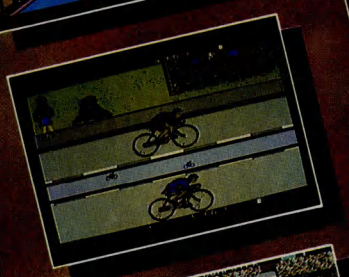
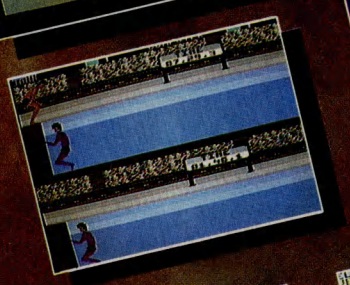
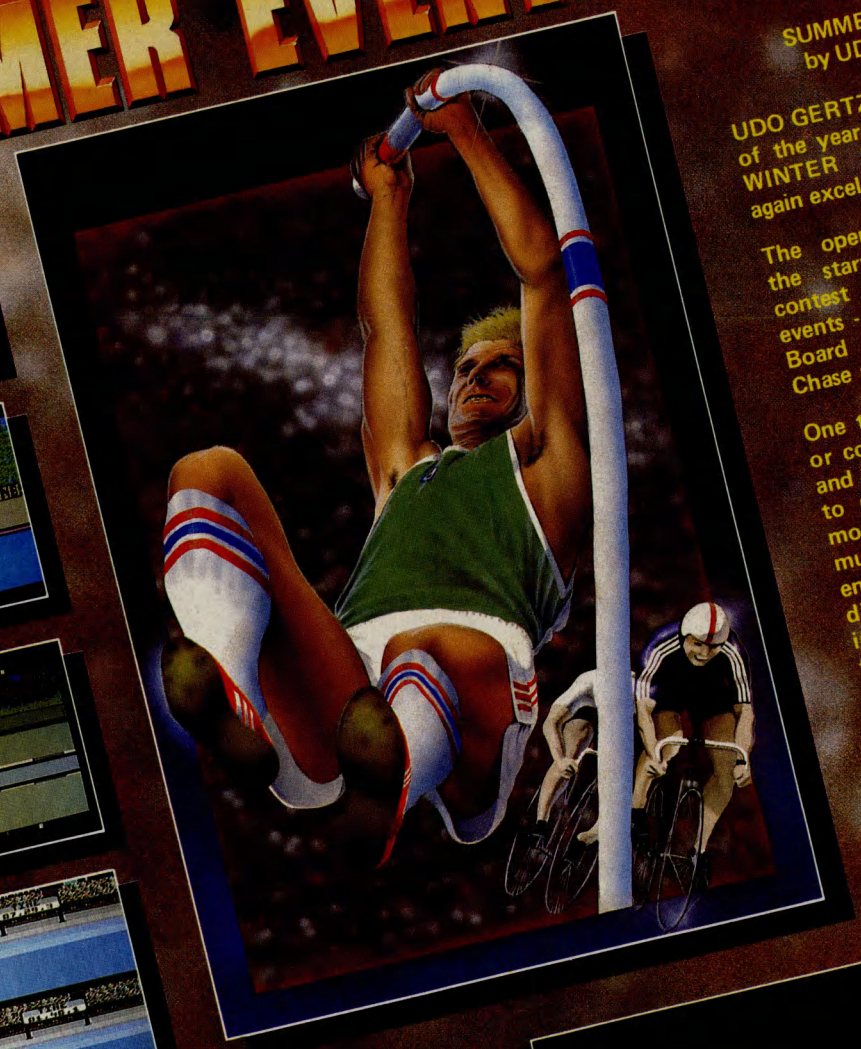
SUMMER EVENTS









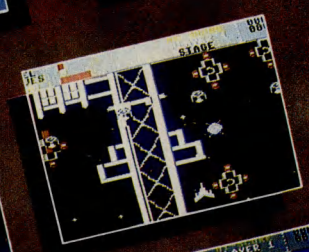
SUMMER EVENTS
by UDO GERTZ

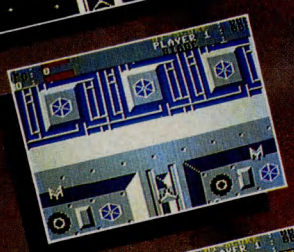
UDO GERTZ, voted programmer of the year for his chart topper, WINTER EVENTS, has once again excelled himself.

The opening ceremony signals the start of a breath taking contest for supremacy in six events - Swimming, Cycling, High Board Diving, Kyaking, Steeple Chase and Pole Vault.

One to four players can practice or compete in one or all events and select the country they wish to represent. The Medal Ceremony at the end of each event, music, superb graphics further enhanced by expanded screen display (no border) and challenging game play set a new standard for C16 and Plus 4 games.

C16/+4
£9.95

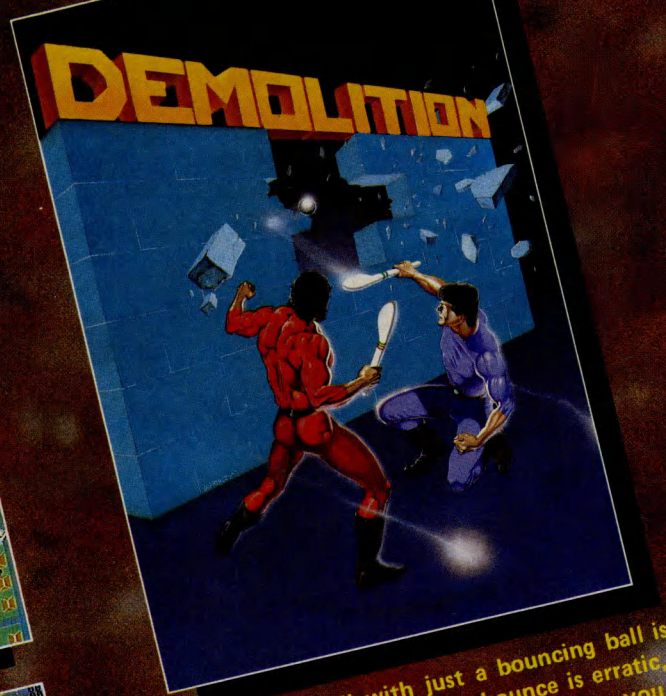




Sent to explore new territories for badly needed minerals, you come under a deadly attack by air and ground. Survive, if you can to dock with the mother ship. Refuel and rearm to embark on your quest once again. You have four territories to explore and they get progressively better defended. Bon Voyage!

£7.95
C16/+4

PLUS 4 SCREEN SHOTS



Demolish a wall with just a bouncing ball is not easy, especially if the bounce is erratic, unpredictable and fast. No sooner have you demolished one wall, another one appears with a different pattern, requiring a different strategy. 1 or 2 player option and 6 speeds.

£5.95
C16

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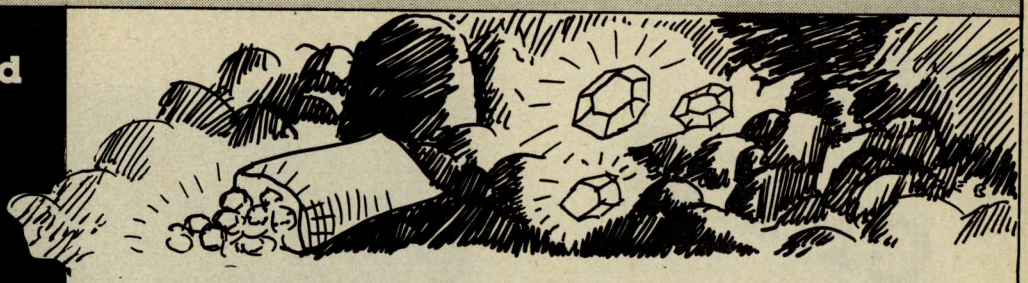
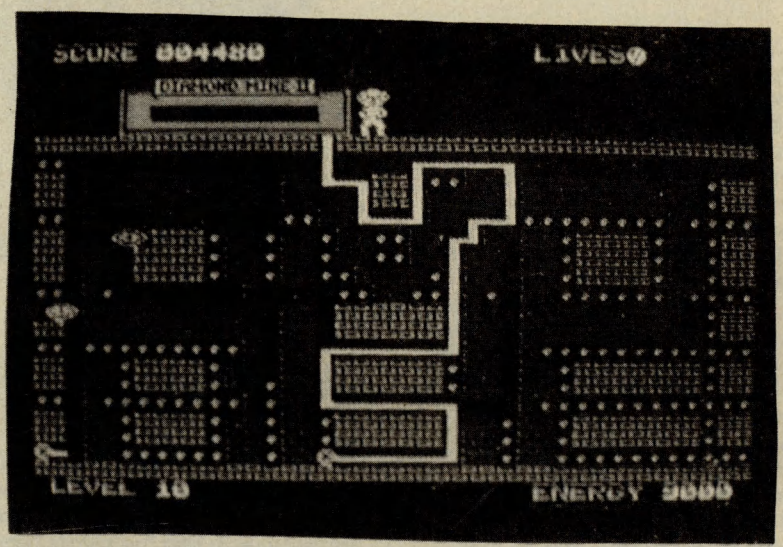
REVIEW

C16/Plus 4 Diamond Mines I & II — Blue Ribbon



IFTY



These two games are from a little company called Blue Ribbon, who specialize in BBC games. They have now tried to break into the C16 market with these two little numbers. They are very similar in style but do have a certain kind of addictiveness that pulls you back for more.

In Diamond Mine I, you have opened up (yes, you guessed it!) a diamond mine, but even though you know diamonds are in there — getting them is proving difficult. So you get a pipe which collects them.

Using this pipe, you guide your way through twisting tunnels to collect your diamonds, which are hidden in niches. Touching the walls or a bug you lose twice as much pipe as you used but if you collect a diamond or the bugs touch you, you only lose that length. When all you pipe is used up it's game over. Graphics aren't anything to write home about, but it's quite an entertaining game.

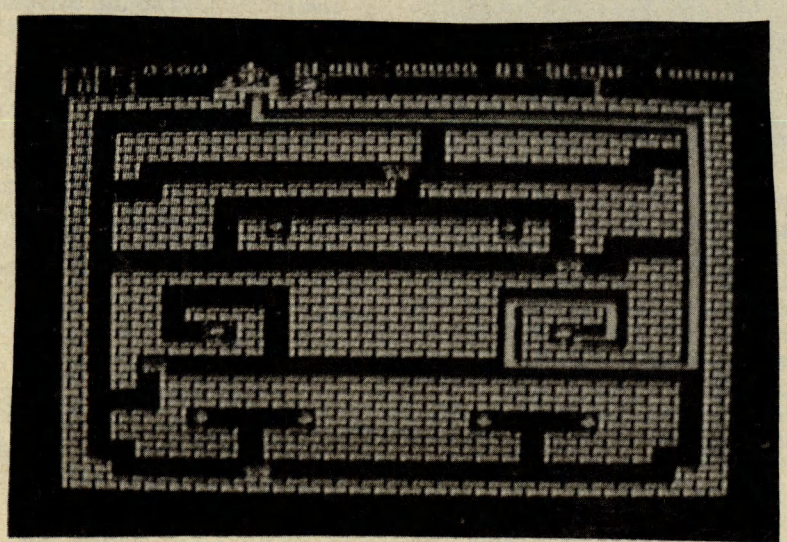
Diamond Mine II carries on where its predecessor left off. Your first mine was a success so you've invested all your money into an even bigger mine. This time you have a vacuum pipe to suck up the diamonds. You also have a robotic assistant which keeps the engine on your pipe running and will only run out after a very long time.

There are diamonds everywhere in this game and it's set out like Pac Man, with eyes replacing the ghosts.

Graphics have been improved in this game and you can suck up your attackers with your vacuum but they reappear after a while so you have to watch your back. It is also possible to reverse in this version, which helps a lot.

These are two 'odd-bod' type games and work out to be pretty good value for money but their lastability is dubious.

C.K.



Price: £1.99
Graphics: ★★★
Sound: ★★
Playability: ★★★
Rating: Iffy

REVIEW

Deathscape —Starlight

CRISP

Why is it that everyone assumes that if there is any life on another planet, that they will all be hell bent on destroying mankind an the Earth? Do we fly around in spaceships looking for other lifeforms to kill? No, we send out capsules with polite messages and pictures of ourselves. Why doesn't someone make a film, or game with nice, friendly, good looking aliens?

Deathscape takes the computer game conventional view of aliens, and has you saving the world from the evil Vargs. Most of the action takes place in a grid of tunnels where you must take out ten fortresses which each give you a part of the code needed to gain access to the final stage of the game. There you must destroy the Varg mothership and put an end to their plans. A variety of aliens defend fortresses, fuel dumps and generators in the tunnels. Shooting fuel dumps and generators gives you extra fuel and energy. If you have enough energy, you may teleport to your control ship, where you take over its defence controls. If you hold off the Vargs for long enough, you will be rewarded with two extra missiles.

The view is from the cockpit of your spacecraft which has a number of instruments on the dashboard giving information on the approaching aliens and fuel levels and the like. As you move the joystick, you see the pilots hands on the controls moving with you. If you select an otion such as 'grid map' or 'teleport to control ship', his other hand reaches out and presses the appropriate button on the dashboard — a nice touch that.

Underneath its sci-fi scenario, Deathscape boils down to a well programmed, but fairly simple 3D blaster. Nothing special really, but worth a look if you like this sort of game.

T.H.

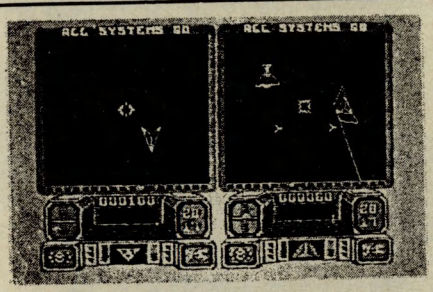
Price: £9.95
Graphics: ★★★
Sound: ★★★
Playability: ★★★
Rating: Crisp

Dogfight 2187 —Starlight

The new Starlight label is already developing a recognisable style — sharp shoot 'em ups with a deep space theme. Perhaps Francis Lee, Starlight's boss has been influenced by his time at Beyond and its long connection with Star Trek.

Once again you are called upon to save the universe. This time, the baddies are emerging from a hole somewhere in space, threatening to destroy the universe. The only way they can be stopped is by finding nine parts of a generator, which, when assembled in the vicinity of the hole, will close it for good.

You have two choices — to go it alone, or to team up with another player and rid the universe of these evil beings together.



On your mission you will come across many different alien ships armed with lasers just waiting to frazzle some do-gooder Earthling.

Some aliens will be carrying parts of the generator. Shooting these will allow you to collect their abandoned cargo. Only two pieces can be carried at once, so every time you collect a couple, they must be taken to the hole.

The screen is split in two parts, each showing the view from the cockpit of one of the two ships. The aliens are drawn in 30 vector style graphics which don't move very smoothly and are hard to make out at times.

The music and sound effects are nothing special, but do their job adequately.

It has to be said that Dogfight 2187 has nothing particularly new or exciting to offer, but as it is obviously expertly created it will be enjoyed by 3D space game fans. I have to say I preferred Starlight's other recent release Deathscape which has a touch of extra class.

T.H.

Price: £9.95 cassette
Graphics: ★★★
Sound: ★★
Playability: ★★★
Rating: Crisp

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Just Scrolling Along

Note: Peter Gerrard's article last month "Interrupted Again" mentioned some program instructions. These are fairly extensive and we shall include them in full in the next issue of CCI.

Some programs are written to satisfy a demand, other to satisfy a whim, and this is one of the latter. While sharing a glass or three of Johnnie Walker with a friend of mine, he complained about a lack of understanding in the murky depths of machine code. He could recognise instructions, he could use some of them, but given a practical problem to solve he had no idea of where to begin. A dilemma shared by many, I would imagine. For instance, he said, sideways scrolling. "I can see how to scroll a screen round and round in a loop, but how do you do the sort of thing that young Crowther manages? Scrolling lots of screens, getting information from somewhere else and scrolling that on to the screen, how do you do it?"

"Well John" I replied (for it was none other than John 'Wizard' Ryan, the motorbike world's answer to Heath Robinson), and then stopped. You, see, I'd never written a sideways scrolling routine before, and before another shot of Scotch had gone the way of all the others I was determined to write such a program. This is the result, left and right scrolling over six screens of information. Or six screens of backgroud graphics, depending on what you want to put up there.

The problems

First of all, simply scrolling the screen left and right. Although register (53270) allows single pixel scrolling in either direction, it only scrolls for one character space before jerking everything back to where it started from. Many books have said that by scrolling forward one space, then writing a routine to move the screen forward a further space before it goes back again, would provide the solution to the problem. Wrong. I found it impossible to achieve a smooth motion using this technique, and decided to settle on character by character motion, albeit making it as smooth as possible, The result, as I hope you will agree, is quite a success.

Secondly, where are you going to get the information from? One screen is all very well, all the data is stored up there and you just move the left most character on to the right hand side of the screen when going from right to left, and vice versa. However, when one screen has to be scrolled off character by character and another scrolled on, something has to tell the 64 where to get the data from, and where (in that great list of data) it is currently residing. In other words, when scrolling one mor character to left or right, we have to ensure that the correct next character is the one that appears on the screen. For that, I settled on a machine code routine that actually alters itself while running.

Finally, we have to make the movement extremely smooth. Although the two decisions in the previous paragrphs meant that I could get six screens scrolling left and right quite happily, the result was a little bit jumpy, to say the least. Consequently this jumpiness had to be reduced, to give the result of a whole set of screens moving as if well-oiled. How?

Previous articles for this illustrious journal have concentrated on interrupts of the hardware vector kind, and although it was fairly obvious that interrupts were going to play a part somewhere I didn't think that the HIV would provide the answer. Scrolling six screens before the 64 could get on with its day to day housework? The 64 doth protest too much. Raster interrupts (sounds like a character out of a dreadlocks situation comedy) were the job, so what exactly are they?

Raster Interrupts

As you are probably aware, the 64 builds up its screen display by scanning down through a number of lines. 625 line T.V. means that there are 625 lines of information being displayed, and these are continually refreshed and updated. The 64 behaves in exactly the same way, although of course it has less than 625 lines to contend with, maximum resolution in the Y-axis being a mere screen display of 200 lines. As a result of this there has to be a register somewhere inside the 64 that tells it which line is currently being scanned and updated. If we confine our scrolling screen to a small window (15 lines high

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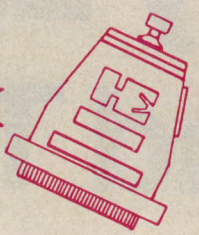

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6502

Assembly Language Tricks and Tips — Part 1

In 50 years times when some of the artifacts of current computer technology are on display in a museum there will be one place of honour reserved for a humble 8-bit processor. This processor will be the 6502 and you will be able to tell the grandchildren accompanying you on the visit that this was the processor that started you off programming or using computers. Just in terms of numbers produced the figures are astonishing — over 6 million Commodore 64's, 1 million Commodore 128's, then add VIC-20's, PLUS/4's, C16's, PET's, APPLE I and APPLE II's, BBC Model-B's, ELECTRONS, ATARI's and the other *also-rans* and there must be easily more than 10 million machines using this processor and its successors.

However, enough of this sentimentality and let's look at this processor's oddities from the point of view of the Commodore 8-bit assembly language programmer. Note that throughout this text I will be using the generic term '6502' to additionally cover the 6510, 7501, 8501 and 8502 as found in the Commodore 64, Commodore 16, PLUS/4 and Commodore 128 respectively. The first thing that strikes the programmer is the limited number of registers, and worse still only one can be used for boolean and arithmetic operation, namely the *Accumulator* or A-register as it is more commonly called. Starting from location $0000 each 256 byte area is known as a *page*. The locations in the first *page* (*Page Zero*) are optimised for speed and usually save 1 byte over any other locations although in most machines these same locations are invariably heavily used by the operating system itself. An example of the saving that can be achieved in *Page Zero* is demonstrated by the following:—

```
LDA $4000   ; place value of location
            $4000 into accumulator
STA $5000   ; and place this value at
            location $5000
```

Using *zero page* locations this now looks like this:—

```
LDA $FD
STA $80
```

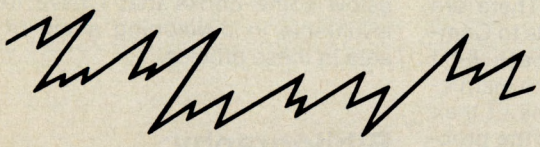
Note the saving in the number of bytes used — four in the latter as opposed to six in the former due to single-byte addresses. This saving is reflected in the clock cycle used, reducing from eight to six. Never, never underestimate the importance of clock cycles particularly where input/output operations are concerned.

The system stack lies fixed in page 1 of the memory map and is only 256 bytes in depth with the stack pointer only able to be set and cleared by the X-register — handicaps that can lead to all sorts of dubious practices by programmers. Because of the limitations of manipulating the stack pointer and the fact that the stack grows downwards — in other words, decreasing address locations, it is always a good idea to initialise the stack pointer at the beginning of a program:—

```
LDX #$FF   ; set the stack pointer to
           the top of the stack
TXS
```

Note that when the stack *wraps-around* — when the bottom of the stack is reached, it does not continue on into *Page Zero*. While the stack contains all of your program's return addresses and variables — the solution: avoid recursive routines and look out for duplications.

Your key to communications!



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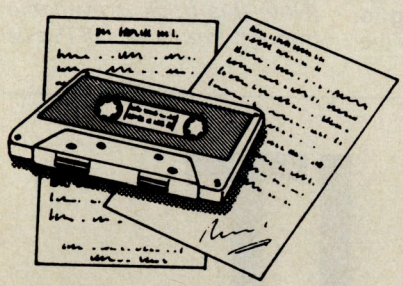

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Hints and Tips

The status register flags of the 6502 family can be confusing at times particularly the Carry and Decimal. The other flags are quite straightforward for those programmers coming from any processor. The Negative and Zero flags are always changed when operating with a value — the Negative flag indicating the condition of the most significant bit, the Zero flag is set when all the bits are cleared, i.e. when the result is zero. The Decimal flag is only useful in applications that demand a high degree of numeric accuracy and therefore need binary-coded decimal operation. Thus is the application is not an accountancy package then ensure that the Decimal flag is cleared at the beginning of your routine by use of the CLD instruction. The trickiest flag of all is the Carry flag since this operates in a completely different manner from the other common 8-bit processor, the Z80. On the 6502 the Carry flag is *cleared* whenever a borrow occurs in a subtraction operation. Generally speaking in assembly language terms, when an operation produces something then this is indicated by means of the flag being set.

The BIT instruction goes a little way to meeting the lack of operations on individual bits in the 6502 although this instruction is limited to the seventh and eighth bits. The only real use it has is to test for the setting of a boolean variable, viz. either $FF or $00 by placing the seventh bit in the Overflow flag and the most significant bit in the Negative flag.

Probably the biggest drawback on offer from the 6502 appears in the inability to be able to directly transfer the X- and Y-registers to the stack. Ironically this deficiency was rectified in the 65C02 processor (the CMOS version of the 6502) as used in the Apple IIE machine, yet despite Commodore being at the forefront of production and design of the 6502 family, we are left to struggle with the problem. There are four possible options available to Commodore in the future of these 8-bit machines — they can leave the instruction set unchanged, use some of their design expertise to engineer the problem out, move to the 65816 half-way house processor or go the full route and move completely to the 68000 family — I rather suspect it is a choice between the latter two options.

Meanwhile moving back to the problem under discussion, to *push* or *pop* the index registers means an indirect transfer through the *accumulator*. This also means that the contents of the *accumulator* must be saved if they are important by either pushing the contents onto the stack, into the other index register or finding and address location for temporary storage, thus adding to the overall execution time. Probably the optimum solution where the *accumulator* must be saved is to use an address location since this allows access to the contents by the other registers. However this method has the additional disadvantage of using up a memory resource.

That just about covers most of the quirks about the 6502 family. In the next part of this series I will be examining ways of getting around some of these problems by demonstrating programming techniques with the objective of producing faster code. I have appended below some books that I have found invaluable in developing some of the area in these articles.

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Machine Language For The Commodore 64 And Other Commodore Computers. Butterfield J. Brady Communications. ISBN 0-8903-652-8. 1984.
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Reviews

LOAD IT

If I had a British Telecom share for every minute I've wasted waiting for a tape to load only to end up with nothing more exciting than the message "LOAD ERROR" I would be a very rich man! I am in the interesting position where we receive numerous programmes from readers all over the world and it would be unreasonable to assume that they all have their datassettes heads exactly aligned. So I am sure you won't be surprised to discover that we often have trouble in loading their masterpieces and that we have had to return hundreds of tapes with a preprinted slip saying, "Sorry — unable to load tape". Then it happened! I received a telephone call that was about to resolve all my loading problems. It was from the wonderful and talented person, my Editor (It's no good Ian, you still can't have a pay rise. Ed) to tell me of a small modification I could have done to my datassette to eliminate loads errors. As you can imagine I was a little sceptical but what did I have to lose? I popped the datassette into the post and got on with some of the more exciting things in life like putting up shelves and mowing the lawn etc. A few days later it was back. I ripped open the box, grabbed the datassette and made a rush to my computer room before the wife could get me to any more of those LITTLE jobs. On examining the tape deck the only obvious difference was the addition of a small black knob and scale situated between the keys and the part you put the tape in. However, on trying to load the tape I could hear a curious noise emanating from the datassette. I thought it was about time I read the instructions. It seems that those clever lads up at LOAD IT had thought of everything. The noise I could hear was being generated by a piezo transducer (a small speaker to you and me) and is used to enable you to listen for the clearest data signal while you adjust the knob. When you have found the best signal you can jot down the reading on the scale to save time the next time you need to load that tape. After a little research, I dicovered that LOAD IT have had their modification tested by several high street computer retailers to the acclaim of them all. Also, in order to appease those of you out there that LIKE D.I.Y. they will sell you a kit comprising of easy-to-follow instructions on all the bits you will need to do the mod yourself. Does anybody want to buy 735 slips of paper with the words "Sorry — unable to load tape" printed on them?

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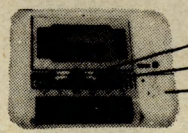

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The following list is of their first disk/cassette, and is reproduced courtesy of TPUG directly from their Commodore 64 library magazine.

If you are interested, please do not contact CCI, but TPUG direct.

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(C)U2 - UTILITIES 2
(disk only)

LIST-ME(C)U2.L	Contains information about the programs and files on (C)U2.
C64.MENU	See a list of what is on your diskette and then LOAD what you want from a menu.
AUTO BOOT.C	See a list of what is on your diskette and then LOAD what you want from a menu.
MENU.C	See a list of what is on your diskette and then LOAD what you want from a menu.
AUTOBOOT.C	See a list of what is on your diskette and then LOAD what you want from a menu.
DOS IN BASIC.C	Allows you to access your disk drive more easily.
DOS.C	Allows you to access your disk drive more easily.
4040 COMMANDS.C	Allows you to access your dual disk drive more easily.
USING 64 WEDGE.C	Contains instructions for "DOS 5.1" and "DOS5.2.D". Be sure and read them so you can make the most of these two good little disk access utility programs.
C-64 WEDGE.C DOS 5.1	Loads and executes "DOS 5.1". Allows you to access your disk drive more easily.
BOOT DOS 5.2.C DOS5.2.D	Loads and executes "DOS5.2.D". Allows you to access your disk drive more easily.
DOS COMMANDS.C	Allows you to access your disk drive more easily.
ROM EMULATOR.C	Allows you to load any of the four versions of the Commodore 64 into your C-64.
SX 1 SX 2 SX 3 SX 4 R1 1 R1 2 R1 3 R1 4 R2 1 R2 2 R2 3 R2 4 R3 1 R3 2 R3 3 R3 4	Loaded and used by "ROM EMULATOR.C". Loaded and used by "ROM EMULATOR.C". Loaded and used by "ROM EMULATOR.C".
PROGRAM INFO.C	Looks at a program on your disk & then tells you a bit about it.
CHANGE TITLE.C	Allows you to change the name of any of your diskettes.
COPY FILE.C	Copy one program from a 1541 formatted diskette to another using one 1541 disk drive.
COPY FILES.C	Copy some or all of one 1541 formatted diskette to another using one 1541 disk drive.
UNICOPY INST.Z	Contains instructions for "UNICOPY.C".
UNICOPY.C	Copy some or all of one 1541 formatted diskette to another using one 1541 disk drive.
COCKROACH 1D.C	Copy all of one 1541 formatted diskette to another using one 1541 disk drive.
COCKROACH 1.C	Copy all of one 1541 formatted diskette to another using one 1541 disk drive.
COCKROACH 2D.C	Copy all of one 1541 formatted diskette to another using one 1541 disk drive.
COCKROACH E.C	Check your diskette for bad spots.
COPY-ALL V2.C	Copy some or all of one 1541 formatted diskette to another using two 1541 disk drives.
FAST BACKUP.C	Copy all of one 1541 formatted diskette to another using one 1541 disk drive in only four minutes.
FILE COPY.C	Copy one file from one 1541 formatted diskette to another using one 1541 disk drive.

Utilities...(C)U2 - UTILITIES 2 cont.

DISK PRINTER.C	Prints out the directory of any diskette.
BAM.C	Displays the BAM of a diskette.
BLOCK FREE.C	Displays the number of blocks free on a diskette.
DIR READ.C	Reads the directory of a disk into memory.
DIR READ ML.D	Loaded and used by "DIR READ.C".
FAST BAM.C	Displays the BAM of a diskette.
BAMGET.D	Loaded and used by "FAST BAM.C".
TINY DIRECTORY.C	Prints out the directory of a diskette.
DISKPRINT.C	Prints out the directory of a diskette.
GEMINI CHAR.C	Allows you to make your own character set(s) for your Gemini printer.
COMPUTER FONT.D	Can be used by "GEMINI CHAR.C".
NORMAL FONT.D	Can be used by "GEMINI CHAR.C".

(C)U3 - UTILITIES 3
(disk only)

LIST-ME(C)U3.L	Contains information about the programs and files on (C)U3.
SD FILE COPIER.C	Copy some or all of one 1541 formatted diskette to another using one 1541 disk drive.
COPY SOME.C	Copy some or all of one 1541 formatted diskette to another using one 1541 disk drive.
COPY SOME ML.D	Loaded and used by "COPY SOME.C"
SIN DISK COPY.C	Copy some or all of one 1541 formatted diskette to another using one 1541 disk drive.
SD COPY/ALL.C	Copy some or all of one 1541 formatted diskette to another using one 1541 disk drive.
MULTICOPY.C	Copy all of one 1541 formatted diskette to one or several others using one 1541 disk drive.
BLOCK MODIFIER.C	Allows you to look at and alter any track and sector on a disk.
DISKETTE MOD.C	Allows you to look at and alter any track and sector on a disk.
DISK DOCTOR.C	Allows you to look at and alter any track and sector on a disk.
DISK FIDDLER.C	Allows you to look at and alter any track and sector on a disk.
BLOCK MOD.C	Allows you to look at and alter any track and sector on a disk.
DISKVIEW 3.C	Allows you to look at and alter any track and sector on a disk and much more.
FILESORT.C	Sorts sequential files.
BIGFILE.D	Sample sequential file that you can sort using "FILESORT.C".
HUGEFILE.D	Sample sequential file that you can sort using "FILESORT.C".
REPORT GEN.C	Sample report generator that is meant to be used on a sorted sequential file.
DIR SORT.C	Takes the directory of a disk sorts it, and then writes it back out to your diskette.
NON EXEC.2	Will tell you what lines in a program will not be executed.
TOKENIZER.C	Converts sequential file listings of programs back into program files.
DISK TIDIER.Z	Allows you to scratch many files at a time so you can keep your diskettes from getting clogged up with junk.

Education

(C)E1 - TUTORIALS 1
(1 disk/tape)

PONZO TUTOR-1.C	BASIC C64 tutorial: PRINT, FOR/NEXT INPUT, GOSUB
PONZO TUTOR-2.C	BASIC C64 tutorial: CURSOR, STRINGS DIM, GET
PONZO TUTOR-3.C	BASIC C64 tutorial: PEEK, POKE, TI$ FILES, RND, CMD, SYS, MLM
PONZO TUTOR-4.C	BASIC C64 tutorial: MEM MAP, BASIC MEM usage, quiz
PONZO TUTOR-5.C	6510 Machine language. Covers: The A, X & Y registers, LDA, LDX, LDY, TAX, TYA, TXA, TAY, INX, DEX, INY, DEY, INC, DEC, ASL, SEC, CLC, STA, CPX, BNE, EOR, ADC & SBC.
PONZO TUTOR-6.C	6510 Machine Language continued. Demonstrates ways of applying what "PONZO TUTOR-5.C" teaches.
PONZO TUTOR-7.C	6510 Machine Language continued. Covers: BMI, BPL, CLV, JMP, BVC, BCS, BEQ, BNE, BMI, BPL, BVS, CLD, CLI, SED, IRQ, SEI, JSR, RTS, ROR, ROL, PHA & PHP.

(C)E2 - TUTORIALS 2
(1 disk/tape)

LIST-ME (C)E2.L	This file contains information about the programs on (C)E2. To access it, LOAD and LIST it.
SPRITES TUT-1.C	A tutorial program that teaches things about sprites such as: How to read sprite data and put it in memory. How to point a sprite to the data that you have put in memory. How to enable a sprite so you can see it on your VDT. How to make a sprite a specific colour. How to move a sprite horizontally and/or vertically. How to allow a sprite to travel across the Most Significant Bit. How to expand sprites...
SPRITES TUT-2.C	The sprite saga continued. This tutorial covers how to make multi-coloured sprites.
GRAPHIC TUT.1.C	A tutorial program that teaches you how to take advantage of the graphics capabilities or your Commodore 64. Covers things such as: Where screen memory starts. Where character memory starts. How to poke to the screen. How to select different memory 'Banks'. How to turn on multi-colour character mode & a bit on on Bit Map Mode.
GRAPHIC TUT.2.C	More on graphics. This tutorial covers how to move the standard character set into RAM where you change it. Also demonstrates some things that can be done in Bit Map Mode.

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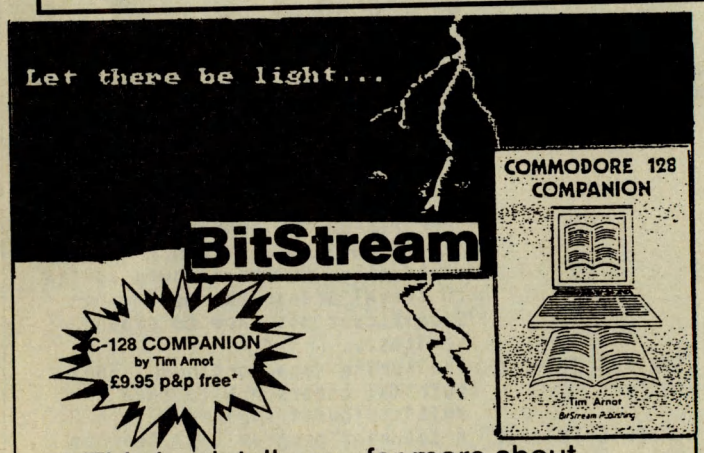

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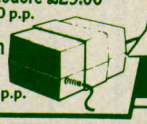

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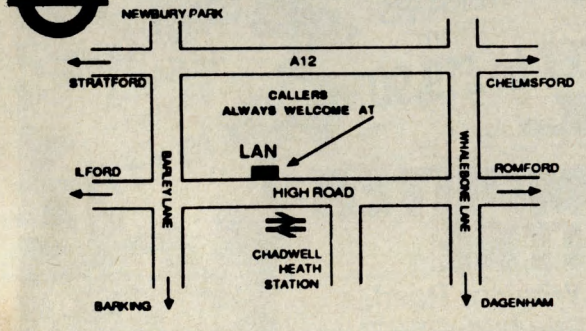

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in the example given later, although as we shall see this can quite easily be changed to produce some startling results) then all we have to do is wait until the raster, or horizontal line being updated, has moved out of our window before we update the image ourselves. That way there is no conflict between my machine code program and the internal ROM gubbins of the 64. The register in question is (53266), and a PEEK of that will tell you whereabouts the raster has got to on the screen. So, before invoking the scroll routine we insert a little interruption which sits and waits until the raster is no longer moving down the area to be scrolled. Then, pounce!

The program

First of all, we'll type in a small BASIC driver routine that puts s little bit of useful information on the screen and then sits and waits for key 'A' (to move left) or key 'D' (to move right) to be pressed. Type it in, save it, but don't run it, otherwise we will have a minor disaster since there is as yet no machine code routine sitting in memory.

"Insert lising headed DRIVER PROGRAM here. Ta"

As you can see, various lines (12 for example) sue codes rather than cursor characters for legibility. Don't type the brackets or the commas, just the keys that have (in our example) RVS (control and 9) and BLU (control and 7) on them, followed by in this case 40 spaces.

Now for the machine code. This is broken down into seven separate pieces, which we'll look at in a moment.

"Insert listing headed DATA PROGRAM here. Ta"

Again, save it before running it. The seven start and end points are given in lines 190 to 192, in the order start/end for each block. If you want a checksum added to enable you to find any errors that might creep in, below is a table of values for each of the seven blocks:

Block No	Total Value
1	7477
2	16262
3	27468
4	3564
5	3022
6	3175
7	3435
	64403

So to check block one, you would have something like:

FORI=49408 to 49471:A=PEEK(I):NEXT

Provided that A equals 7477 all is well, and you can proceed to block 2. Once you're satisfied with all seven blocks, then you can run the program. When the machine responds with ready in its usual infuriating manner then re-load the BASIC driver program and run that. The result will be a load of garbage being smoothly scrolled across the screen, all of 240 characters wide by 15 down. Why garbage? Because we haven't put any information into memory yet.

"Insert program headed DRAWING PROGRAM here. Ta."

This very short program clears the screen and then stops. With the ordinary cursor controls delete the little messge that appears on the screen, and then just draw screen one. Use reverse and space for some simple graphics, use the Commodore graphic symbols if you want to be a bit more advanced, or even user-defined characters if you're feeling up to it. Remember, though, only to use the top 15 lines of the screen. When you're happy, move the cursor down to line 16 or greater, and enter CONT. The program will then store that screen into the correct part of memory and then sit and wait for screen 2. Do this until you've filled six screens with data, then load the machine code and driver programs again. No you can sit back and watch your own message, or whatever, scrolling smoothly along.

How does it all work

As you've seen there are seven different sections to the code, so we'll look at each one in turn.

Block one is the raster interrupt routine. It just continually looks at location 53266 and waits until the raster line is not on of the 15 screen lines that we're going to scroll. Then control leaves this block and jumps to the next one.

Block two is slightly longer, and controls left and right for the whole screen. It ensures that all 15 lines are scrolled, one line at a time, and control doesn't come out of this loop until that has been achieved.

Block 3 is longer still, the longest one of all in fact, and performs the actual scrolling. For right to left we move the second character on line one to where the first one was, the third one to where the second one was, and so on, until character 40 is moved to where character 39 was. Then, by looking at location $C500 we find out that character 41 now has to go where character 40 was. Another scroll, and we have to bring on character 42. This continues until character 240 is stored on the screen, at which point control comes out of this program and back to the BASIC driver one. This has the effect of scrolling all 240 characters before we can start going in the opposite direction, so you might like to disassemble the program and find out how to get control back after just one character has been stored. As a clue, you'll need to change a JMP to an RTS, or to put it another way stop the program looping round after every 15 by 40 character scroll and return the BASIC instead.

Blocks 4 and 5 are only short, and are simple housekeeping routines. They basically (sorry!) tell the routine where it's got to. That is, which character is coming in to the screen next.

Block 6 tells the routine where to store the data on the screen. You'll see that the first two entries in line 900 are 000 and 004. Reversing this in the time honoured tradition gives us the value of 0400, the address of the first screen location on line one. The next two entries are the address of the first screen location on line two. and so on for every line on the screen.

Block 7 tells the routine where the data is coming from. The DRAWER program puts data into memory starting at location $6000, and continues in steps of 240 characters. Thus the first 240 character line to be scrolled is stored from $6000 to $60EF. The second line goes from $60F0 to $61DF, and so on.

More lines

You would need to alter block 7, since it is only geared up to handling 15 lines at the moment. It doesn't know where the information is going to come from if you want to scroll more than 15 lines, so you'd have to put in values into block 7 that tell it. Not too difficult.

The other locations are 49707 and 49771 for the top line to be scrolled, and 49703 and 49767 for the bottom line, remembering to keep the top line as a smaller number than the bottom one. Also, remember that you must multiply the line by two. Thus, to scroll lines 4 to 21, you would need to:

POKE 49707,8:POKE 49771,8:POKE 49703,42:POKE 49767,42

Conclusion

The result of all this hard work is a six screen wide scrolling area that moves very smoothly on and off the screen, whether going from left to right or vice versa. Game applications immediately spring to mind, the sort of thing that young Crowther does to great success, although more serious programs could incorporate this as well: wide screen word processors for example, since 40 characters is such a limitation when using that sort of program.

As a footnote I showed the working program to John D. Ryan, who'd requested the thing in the first place. "Very good" he said, "have a drink" he said, "how about scrolling vertically as well as horizontally" he said. I won't tell you what I said, but it meant missing several episodes of EastEnders before we had vertical scrolling as well. With the editor's kind permission of course we'll go into that next time.

KA43/2

By K. Aanestad

C-64 + PARALLEL PRINTER

An excellent program of commercial quality. At first glance it just looks like another parallel printer driver routine but further inspection reveals a very flexible and powerful program. On top of all its printer handling facilities it also incorporates routines to ease the use of disk drives and memory. It is quite large at 225 lines but well worth the effort of typing in.

KA43 is a relocatable machine code utility that will enable a standard Centronics printer to emulate Commodore's with nothing more elaborate than a simple cable. It also provides facilities to print high and low res screens (including those with user defined graphics), to ease the use of disk drives and to load and save machine code programs and data. When run it will wedge itself into any other programs in memory. It should therefore, if possible, be the last program initiated. All commands are accessible in both program and direct mode.

LOADING INSTRUCTION for KA43/2 SOURCE:

POKE44,22:POKE22*256,0:NEW<RETURN> in direct mode before typing in the program. You may include an extra line 85 STOP
to halt the program. When it is running OK, delete line 85 and save a copy. RUN the program. A new Basic program with a MC tail of 1877 bytes is created. Save"KA43/2 CENTRE." and RUN the program as an ordinary Basic program.

Load and run KA43. If you choose a location at the top of Basic RAM, the program will lower the necessary pointers to protect itself. Turn on your printer. You can now use OPEN 4,4 and PRINT#4 or CMD 4:LIST as normal.

CENTRONICS interface modes (key in and press <RETURN>):

←C0 CBM or your own defined characters printed exactly as used on the screen.
The only printer code you can use is CHR$(18) and CHR$(146) for RVS ON/OFF.

←C0,x As above, except printer bit map density changed to x (default 76).
Consult your printer manual. Try 75 or if you own a Smith Corona 53.

←C1 Standard printer character, upper/lower set as on screen (default).
You can use your printers control codes.

←C2 Standard printer characters, forced ASCII conversion.
To be used when you will ensure normal ASCII codes to printer.

←C3 Standard printer char., emulation mode i.e. no char. conversion.
Can be used when you want bit map dumps not controlled by KA43/1.

Normally you will be satisfied with the default value. If you make another choice, the value will remain intact until you make a new choice or switch the computer off. Listing of a program will require that you use ←C0. All Commodore control codes will then be printed.

The Centronics ports will be disabled by warmstarting the computer (e.g hit RUN/STOP and RESTORE). Usually this will not disable the wedge, this means it is not necessary to make a SYS calls restart. It is easier to press: ←C1<RETURN>

SCREEN DUMPS

←6 Graphic dump of high-resolution screen. Can also be used for Multi-colour, but you lose the colours. Keep RUN/STOP pressed to stop printing.

←6x As above, bit-map screen from location 256*x (i.e. x=high byte). Actual values are 32, 64, 96 (default) and 160.

←K Copy of text screen to printer. Bitmap density as specified by ←C0, double density (76) by default. Keep RUN/STOP pressed to stop printing.

←Kx As above, except left margin equals x.
The value is not memorised by the program.

←Kx,1 As above, except that you are getting an exact copy of the screen.
KA43 controls the line-spacing to the printer (24/216").

←I Interrupt controlled screen dumps. Use SHIFT+CTRL G or K for hi-res Graphic or text copy. Disable by RUN/STOP RESTORE.

By using the ←6 command the software controls the linespacing of your printer. This may not always work correctly. To disable this facility: POKE <Adr.+291>,14 where Adr.=Start up address of KA43.

The ←I command will normally not work on protected programs or programs which disable the RUN/STOP and/or RESTORE keys.

DISK COMMANDS

←D Directory is shown on the screen without erasing any Basic program.
STOP the listing with the Space key.

←E Any disk Error status is shown. i.e. disk status channel.

←E"C" Disk command, see your disk manual.
E.G. "C"="R0:BETTER=GOOD" which renames the program "GOOD".

ML-SAVE & ADD COMMANDS

←M<Start adr.>,<End adr.+>,"Name",<D>,1

ML-save, D=1 for cassette and D=8 for disk. Load with LOAD"Name",D,1.

←A<Adr> Additional command. Adr. must be a figure, and are only used once.

E.g. ←A49152<RETURN>. You can then use ←A<RETURN> instead of SYS49152<RETURN>.

Remember to reset the computer after a ML load. The easiest way is to enter NEW<RETURN>.

HINTS AND TIPS FOR KA43/1

Be sure your printer supplies its own linefeed after carriage return (i.e. after RETURN or CHR$(13) is received).

When ←C0 or ←K are in operation, KA43 uses. the cassette buffer as a temporary store (from 828 to 1019). Any ML-program here or Sprite figures will then be destroyed. Be careful!

Some POKE's can help you to customerise KA43 to your needs:

POKE<Adr.+484>,x Change Bitmap density to x for hi-res dumps.
POKE<Adr.+449>,33 Origin text after ←K and ←G dumps.
POKE<Adr.+1392>,x Trim printer buffer x in step of 8 from 144 (max. 176) for smoother operation.
POKE<Adr.+1536>,x x is number of lines ←K will dump to the printer (25 by default).

The user port at the rear left side of the CBM64 must be hooked to the Centronics printer with a standard parallel for Easy-Script and VizaWrite.

CBM user port	Centr. DB-36
A	27
B	10
C	2
D	3
E	4
F	5
H	6
J	7
K	8
L	9
M	1
N	19

PROGRAMS ON PAGE 104..

REVIEW.....

More Print Shop

The Print Shop has been around for a year or two now, and many Commodore users have reason to bless it for the ease with which posters, letterheads, greeting cards and the like can be produced at very short notice but with professional results. Now come two more graphics disks from the same stable, courtesy of Precision Software Ltd. who import the Print Shop disks.

Graphics Disk 3 carries on the series with all sorts of useful graphics, with business and direction signs (Men, Women, Quiet, Fragile, Up, Right, Left, Pay Phone, No Smoking, Fire, Visa and Mastercard etc.), weather and seasonal pictures and many more, including animals such as lion, tiger, panther, beaver, shark, octopus (who needs a graphic of an octopus?), parrot, and a Partridge in a Pear Tree, together with a collection of Greek Gods and even the ubiquitous Three Monkeys. For anyone needing to extend their collection this is a very useful disk.

Holiday Edition is a further extension, based on all the holiday occasions of the year. Most of our normal holidays are here, including many new Christmas graphics such as reindeer, sleigh, the Nativity, and Christmas Lights. In addition there are some useful ones for New Year, Valentine's Day, Mother's Day, Easter, Halloween, and even the Chinese New Year. There are naturally some special American ones, some vaguely familiar from films (Liberty, Independence, Thanksgiving, Mardi Gras) and some quite unknown to me. Is there really a Marting Luther King Day, and what does May 5th signify? In addition there are ten new fonts (one or two rather weird and unlikely to be used much, but some useful ones such as Creepy, Frosty and Candy), and there are fourteen new borders, with Holly, Bells, Easter Eggs and Ribbons being the likeliest — skulls and crocks of gold being unlikely to be used by me. I find the Amercian style somewhat over-sentimental and very Junior High School at times, but there are so many good new graphics available that this is well worth buying, especially for those who cannot find the time to create their own. The graphics can, of course, be edited, and they allow free rein for your own artistic ability while minimising the drudgery.

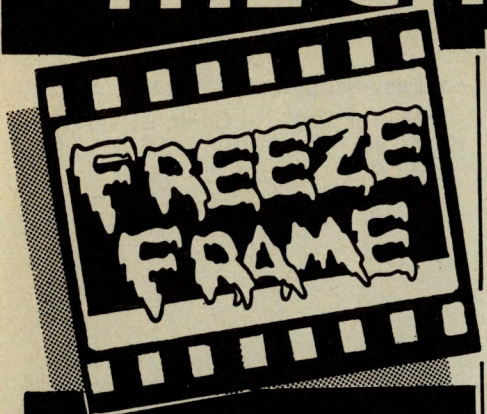
One extra feature worth mentioning is the new range of Full Panel Designs, which take up about half of an A4 sheet of high-resolution graphics (about the size of a Screen Magic Design). They are too Americanised for my taste on the whole, but the Wise Men or The Carolers are very well done. As with the Screen Magic designs you may add text of your own, and if you printed the picture on the bottom half of an A4 sheet of thin card with geetings on the corresponding half of the other side you would have a very pleasant customised Christmas Card. They say that these are large coloured graphics, but I haven't got a colour printer, so I wouldn't know.

I like these disks, which extend the facilities of the original Print Shop disk. It isn't cheap to set up the whole system, (each of these disks costs £19.95) but most people tend to buy a disk now and then, and quite frankly I haven't seen such a wide range of professional looking work produced on any other computer under several thousand pounds. Many people refuse to believe it was done on the humble '64 with a dot-matrix printer. The system has become so diverse in America that a special Print Shop Organiser Binder is now available, with special pockets for disks, transparent pocket pages for the graphics cards, and a cross-referenced graphics index. There are packets of fan-fold paper in rich vibrant colours, (Cherry Red, Brilliant Yellow, Electric Blue, Rich Gold and Sweatheart Pink) complete with envelopes, and more muted pastel ones "for quality correspondence" with coloured ribbons for the printer "in six rich, dramatic colours to bring your creation to life." They even sell special heat-transfer printer ribbons so that you can print a poster in reverse and then iron it on to a tee shirt, but these do not seem as yet to have reached this country. Perhaps Precision Software could be persuaded to offer us a selection of such goodies.

G.D.R

Contact: Precision Software Ltd, 6, Park Terrace, Worcester Park, Surrey KT4 7JZ.

THE CHOICE IS YOURS!



BACKUP CARTRIDGES

THE FACTS

Almost eighteen months ago, Freeze Frame Mk I revolutionised backup methods. Since then many imitators have appeared on the market. Some of the claims being made for certain of these products are rather misleading. Let us inform you of some positive facts.

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2. **Only Freeze Frame can automatically handle these and other programs. You don't need to be an "Expert" or need "O" levels to operate Freeze Frame.**
3. **At press date (11.2.87) our exhaustive tests were unable to find any memory resident program that both Freeze Frame Mk IV and Lazer were unable to back up, completely automatically.**
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THESE ARE THE FACTS
(not outrageous advertising claims)

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DISC to DISC **DISC to TAPE**

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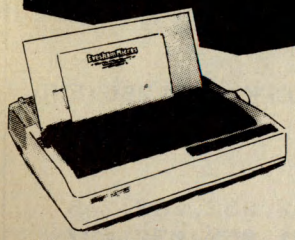

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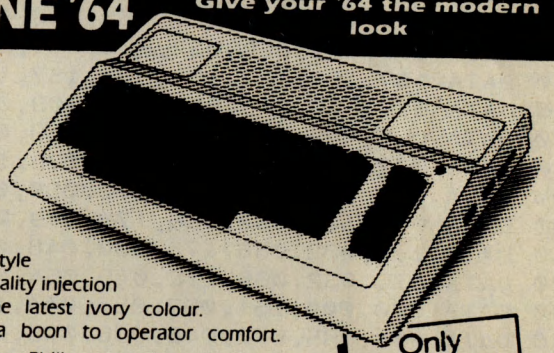

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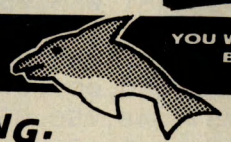

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FITTING

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SOME OF THE FEATURES

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- ★ 12x FASTER SAVING (PRG FILES)
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(These figures do not allow for searching)

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Program

KA43/2

By K. Aanestad

```
10 REM" KA43/2 CENTRONICS SOURCE PROG.
20 AD=2049:PRINTCHR$(147)SPC(53)"PLEASE WAIT!"
30 FORT=0TO15
40 READA:IFA=-1THEN 80
50 POKEAD,A:C=C+A:AD=AD+1:NEXT
60 READD:IF(CAND255)<>DTHENPRINT"DATA ERROR IN LINE";PEEK(63)+PEEK(64)*256:END
70 C=0:LI=LI+1:PRINT"*";:GOTO30
80 IF LI<>215 THEN PRINT"LINE MISSING":END
90 POKE44,8:POKE45,109:POKE46,21:END
100 DATA 064,008,005,000,143,034,032,075,065,052,051,047,050,032,032,067,245
110 DATA 069,078,084,082,079,078,073,067,083,032,087,069,068,071,069,032,097
120 DATA 050,049,047,049,032,049,057,056,055,032,066,089,032,075,046,032,048
130 DATA 065,065,078,069,083,084,065,068,044,032,079,083,076,079,000,108,054
140 DATA 008,010,000,150,032,165,072,040,088,041,178,181,040,088,173,050,036
150 DATA 053,054,041,058,150,032,165,076,040,088,041,178,088,171,181,040,176
160 DATA 088,173,050,053,054,041,172,050,053,054,000,145,008,020,000,150,087
170 DATA 032,165,068,069,075,040,088,041,178,194,040,088,041,170,050,053,112
180 DATA 054,172,194,040,088,170,049,041,058,076,178,049,056,055,055,000,055
190 DATA 201,008,030,000,087,072,178,165,068,069,075,040,053,053,041,058,174
200 DATA 133,034,147,017,087,069,068,071,069,032,065,084,032,084,079,080,127
210 DATA 032,079,070,032,066,065,083,073,067,032,082,065,077,032,032,089,208
220 DATA 157,157,157,034,059,065,036,000,216,008,035,000,139,065,036,178,062
230 DATA 034,089,034,137,053,048,000,005,009,040,000,133,034,017,087,069,021
240 DATA 068,071,069,032,083,084,065,082,084,032,032,052,057,049,053,050,195
250 DATA 157,157,157,157,157,157,157,034,059,087,076,058,087,072,178,087,045
260 DATA 076,170,076,000,046,009,050,000,087,076,178,087,072,171,076,058,208
270 DATA 086,072,178,165,068,069,075,040,052,053,041,058,086,076,178,086,103
280 DATA 072,171,076,058,066,178,165,076,040,087,076,041,000,111,009,055,001
290 DATA 000,139,032,066,178,050,053,050,032,176,032,066,178,050,053,048,179
300 DATA 032,176,032,066,178,049,053,052,032,176,032,066,178,050,054,032,234
310 DATA 176,032,066,178,050,048,057,032,176,032,066,178,049,055,048,032,251
320 DATA 176,032,066,178,049,054,049,032,137,032,053,049,055,000,137,009,084
330 DATA 060,000,151,057,053,044,165,076,040,086,076,041,058,151,057,054,145
340 DATA 044,165,072,040,086,076,041,000,163,009,070,000,151,057,048,044,042
350 DATA 165,076,040,086,072,041,058,151,057,049,044,165,072,040,086,072,250
360 DATA 041,000,196,009,080,000,151,056,056,044,165,076,040,087,072,041,090
370 DATA 058,151,056,057,044,165,072,040,087,072,041,058,158,052,049,057,193
380 DATA 049,057,000,230,009,090,000,153,034,082,069,083,084,065,082,084,147
390 DATA 032,087,069,068,071,069,032,087,073,084,072,058,032,083,089,083,065
400 DATA 034,059,087,076,000,251,009,244,001,153,058,139,087,076,178,051,223
410 DATA 057,048,056,051,032,137,053,049,048,000,049,010,249,001,129,088,033
420 DATA 178,049,164,032,055,056,058,135,065,044,066,044,067,058,151,087,029
430 DATA 076,170,065,044,165,076,040,087,076,170,066,041,058,151,087,076,168
440 DATA 170,065,170,067,044,165,072,040,087,076,170,066,041,058,130,000,141
450 DATA 075,010,254,001,139,087,072,178,165,068,069,075,040,053,053,041,100
460 DATA 167,158,032,087,076,170,055,058,128,000,085,010,003,002,158,087,252
470 DATA 076,058,128,000,113,010,005,002,153,034,017,080,076,069,065,083,201
480 DATA 069,032,082,069,076,079,067,065,084,069,032,033,034,058,128,000,209
490 DATA 169,010,008,002,131,032,048,048,051,044,049,048,048,044,049,044,057
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510 DATA 051,044,049,044,048,051,054,044,048,048,052,044,049,044,048,053,003
520 DATA 050,044,048,048,053,044,049,000,225,010,018,002,131,032,048,053,087
530 DATA 056,044,048,048,054,044,049,044,049,049,054,044,048,048,053,044,008
540 DATA 049,044,050,049,053,044,048,048,053,044,049,044,050,050,056,044,007
550 DATA 050,055,048,044,049,044,050,057,051,044,052,054,056,044,049,000,235
560 DATA 025,011,028,002,131,032,050,057,054,044,051,057,048,044,049,044,215
570 DATA 051,049,050,044,052,054,056,044,049,044,051,051,053,044,052,054,030
580 DATA 056,044,049,044,051,053,050,044,052,054,056,044,049,044,051,053,026
590 DATA 053,044,051,057,048,044,049,000,081,011,038,002,131,032,052,052,233
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Program KA43/2

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600 DATA 053,044,051,057,048,044,049,044,053,048,054,044,054,049,051,044,019
610 DATA 050,044,053,050,051,044,054,050,050,044,049,044,053,050,057,044,019
620 DATA 054,050,051,044,049,044,053,051,056,044,055,052,049,044,050,000,234
630 DATA 137,011,048,002,131,032,053,053,053,044,055,053,056,044,049,044,097
640 DATA 053,054,049,044,055,053,057,044,049,044,053,055,048,044,056,049,039
650 DATA 052,044,050,044,053,056,048,044,056,053,051,044,050,044,053,057,031
660 DATA 055,044,056,054,056,044,049,000,193,011,058,002,131,032,054,048,119
670 DATA 051,044,056,054,057,044,049,044,054,050,056,044,053,048,051,044,031
680 DATA 049,044,055,049,055,044,053,048,050,044,049,044,055,050,057,044,022
690 DATA 053,048,050,044,049,044,055,051,054,044,053,048,050,044,049,000,224
700 DATA 249,011,068,002,131,032,055,054,051,044,053,048,050,044,049,044,217
710 DATA 056,055,049,044,056,049,052,044,049,044,056,057,048,044,053,048,036
720 DATA 051,044,049,044,048,054,055,044,053,048,052,044,049,044,049,051,011
730 DATA 056,044,050,049,056,044,049,000,049,012,078,002,131,032,049,053,242
740 DATA 050,044,056,055,055,044,049,044,049,053,057,044,057,049,050,044,032
750 DATA 049,044,049,054,054,044,057,053,051,044,049,044,051,051,050,044,020
760 DATA 052,054,056,044,049,044,057,049,048,044,053,048,052,044,049,000,231
770 DATA 105,012,088,002,131,032,055,057,054,044,050,051,049,044,049,044,099
780 DATA 056,050,049,044,053,048,051,044,049,044,056,050,057,044,052,053,032
790 DATA 050,044,049,044,055,054,056,044,053,048,051,044,049,044,057,048,022
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920 DATA 131,032,049,053,051,056,044,049,052,049,051,044,049,044,049,053,088
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960 DATA 044,049,044,049,054,056,049,044,049,055,049,052,044,050,044,049,013
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990 DATA 055,044,049,052,057,055,044,049,044,049,056,051,056,044,050,055,042
1000 DATA 048,044,049,044,049,056,052,049,044,050,051,048,044,049,044,049,002
1010 DATA 056,054,056,044,049,056,055,053,044,049,000,239,013,168,002,131,045
1020 DATA 032,049,056,055,049,044,049,056,055,054,044,049,044,054,051,051,024
1030 DATA 044,049,049,050,057,044,049,044,056,050,054,044,049,052,049,056,028
1040 DATA 044,049,044,055,057,050,044,049,048,054,052,044,049,000,022,014,163
1050 DATA 178,002,131,032,049,055,051,044,049,054,048,051,044,049,044,049,162
1060 DATA 052,053,044,049,052,055,051,044,049,044,049,056,048,044,049,056,027
1070 DATA 053,050,044,049,000,000,000,056,176,022,015,153,231,167,056,165,213
1080 DATA 055,233,085,170,165,056,233,007,168,024,032,153,255,032,253,224,097
1090 DATA 169,243,160,152,032,030,171,174,174,152,172,175,152,236,008,003,155
1100 DATA 208,005,204,009,003,240,018,173,008,003,141,176,152,173,009,003,245
1110 DATA 141,177,152,142,008,003,140,009,003,032,163,154,076,174,167,018,023
1120 DATA 042,042,032,075,065,052,051,047,050,032,067,069,078,084,082,079,179
1130 DATA 078,073,067,083,032,042,042,146,013,000,000,032,115,000,201,095,251
1140 DATA 240,012,165,122,208,002,198,123,198,122,108,176,152,234,169,167,092
1150 DATA 072,169,233,072,032,115,000,072,032,115,000,104,201,071,208,003,219
1160 DATA 076,133,153,201,075,208,003,076,108,158,201,067,208,003,076,024,234
1170 DATA 156,201,077,208,003,076,059,156,201,068,208,003,076,100,156,201,157
1180 DATA 069,208,003,076,238,158,201,065,208,003,076,231,159,201,073,208,129
1190 DATA 003,076,058,159,201,073,208,003,076,000,000,056,165,122,233,003,156
1200 DATA 133,122,165,123,233,000,133,123,104,104,032,115,000,108,176,152,031
1210 DATA 234,234,032,121,000,240,006,032,158,183,142,185,153,024,169,255,120
1220 DATA 141,003,221,169,000,141,001,221,169,004,013,002,221,141,002,221,134
1230 DATA 169,004,013,000,221,141,000,221,169,016,141,013,221,144,001,096,034
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1240 DATA 169,000,133,251,169,096,133,252,024,105,031,133,253,165,001,041,164
1250 DATA 001,133,114,165,001,041,254,133,001,160,011,185,127,154,032,049,025
1260 DATA 154,200,192,019,208,245,169,040,133,113,160,008,169,000,153,127,042
1270 DATA 154,136,208,250,169,128,133,254,162,008,177,251,106,144,010,072,058
1280 DATA 165,254,029,127,154,157,127,154,104,202,208,240,024,102,254,200,197
1290 DATA 192,008,208,228,160,001,185,127,154,032,049,154,200,192,009,208,059
1300 DATA 245,169,007,101,251,133,251,144,002,230,252,198,113,208,187,165,096
1310 DATA 252,197,253,240,047,032,225,255,240,042,208,157,234,174,013,221,230
1320 DATA 141,001,221,072,169,251,045,000,221,141,000,221,162,002,202,208,009
1330 DATA 253,169,004,013,000,221,141,000,221,173,013,221,041,016,201,016,167
1340 DATA 208,247,104,096,165,114,240,006,165,001,009,001,133,001,160,019,133
1350 DATA 185,127,154,032,049,154,200,192,022,208,245,169,000,141,013,221,064
1360 DATA 141,003,221,169,251,045,002,221,141,002,221,096,000,000,000,000,233
1370 DATA 000,000,000,000,027,065,027,051,024,013,027,075,064,001,027,050,195
1380 DATA 013,042,032,075,065,052,051,047,050,032,042,013,013,000,001,120,136
1390 DATA 169,016,160,155,205,038,003,208,005,204,039,003,240,018,174,038,139
1400 DATA 003,142,025,155,174,039,003,142,026,155,141,038,003,140,039,003,204
1410 DATA 169,144,160,155,205,032,003,208,005,204,033,003,240,018,174,032,249
1420 DATA 003,142,161,155,174,033,003,142,162,155,141,032,003,140,033,003,202
1430 DATA 169,217,160,155,141,034,003,140,035,003,169,000,160,156,205,028,239
1440 DATA 003,208,005,204,029,003,240,018,174,028,003,142,015,156,174,029,151
1450 DATA 003,142,016,156,141,028,003,140,029,003,088,096,072,165,154,201,157
1460 DATA 004,240,004,104,076,069,049,104,072,072,173,162,154,208,003,076,034
1470 DATA 020,157,201,002,240,009,176,031,173,024,208,041,002,240,024,104,116
1480 DATA 201,065,144,018,201,096,176,004,009,032,208,010,201,193,144,006,172
1490 DATA 201,224,176,002,041,127,072,173,013,221,104,141,001,221,138,072,135
1500 DATA 173,000,221,041,251,141,000,221,162,002,202,208,253,009,004,141,237
1510 DATA 000,221,104,170,173,013,221,041,016,208,025,173,001,220,201,127,122
1520 DATA 208,242,104,173,161,154,240,003,169,128,044,169,001,133,144,173,198
1530 DATA 161,154,056,096,169,000,141,161,154,024,104,096,138,072,032,015,037
1540 DATA 243,048,007,189,099,002,201,004,240,005,104,170,076,197,049,169,011
1550 DATA 005,141,161,154,162,000,173,162,154,208,022,141,070,003,141,073,234
1560 DATA 003,141,074,003,169,027,141,071,003,169,076,141,072,003,032,211,056
1570 DATA 156,056,032,146,153,138,240,001,096,234,104,170,032,031,243,169,209
1580 DATA 004,133,154,024,096,162,004,228,154,208,012,173,162,154,208,003,087
1590 DATA 032,053,158,032,111,154,056,176,003,032,254,237,162,003,228,153,052
1600 DATA 176,003,032,239,237,134,154,169,000,133,153,096,072,032,020,243,101
1610 DATA 048,007,189,099,002,201,004,240,004,104,076,053,050,032,217,155,201
1620 DATA 104,076,243,242,032,158,183,224,004,144,005,162,014,076,055,164,094
1630 DATA 142,162,154,138,208,014,032,121,000,240,006,032,155,183,142,190,127
1640 DATA 155,234,234,234,076,163,154,044,253,174,032,138,173,032,247,183,222
1650 DATA 132,251,133,252,032,253,174,032,138,173,032,247,183,132,253,133,246
1660 DATA 254,032,253,174,032,212,225,166,253,164,254,169,251,076,095,225,019
1670 DATA 169,036,133,251,169,251,133,187,169,000,133,188,169,001,133,183,001
1680 DATA 169,008,133,186,169,096,133,185,032,213,243,165,186,032,180,255,081
1690 DATA 165,185,032,150,255,169,000,133,144,160,003,132,251,032,165,255,183
1700 DATA 133,252,164,144,208,053,032,165,255,164,144,208,046,164,251,136,215
1710 DATA 208,233,166,252,032,205,189,169,032,032,210,255,032,165,255,166,041
1720 DATA 144,208,024,170,240,012,032,210,255,165,197,201,060,240,012,024,146
1730 DATA 144,234,169,013,032,210,255,160,002,208,192,032,066,246,096,138,149
1740 DATA 072,173,000,221,041,003,073,003,170,240,008,169,000,024,105,064,086
1750 DATA 202,208,251,072,173,024,208,041,014,170,104,224,000,240,006,024,169
1760 DATA 105,004,202,208,251,201,016,240,015,201,024,240,008,201,144,240,252
1770 DATA 007,201,152,208,005,169,216,044,169,208,141,106,158,104,170,096,106
1780 DATA 104,201,013,240,008,201,010,240,004,201,141,208,008,169,000,133,089
1790 DATA 199,104,076,048,158,201,018,208,013,169,254,197,015,240,021,169,042
1800 DATA 255,133,199,024,104,096,201,146,208,012,169,254,197,015,240,004,209
1810 DATA 169,000,240,237,104,072,201,032,176,004,009,128,144,056,201,064,045
1820 DATA 144,052,201,096,176,005,056,233,064,176,043,201,128,176,004,041,004
1830 DATA 223,144,035,201,160,176,004,009,064,144,027,201,192,144,231,201,108
1840 DATA 255,176,004,041,127,144,015,169,094,176,011,072,141,060,003,152,104
1850 DATA 072,164,253,024,144,019,141,060,003,152,072,164,199,240,008,169,092
1860 DATA 128,013,060,003,141,060,003,160,000,138,072,165,174,072,165,175,249
1870 DATA 072,152,072,169,000,133,175,160,007,153,062,003,136,016,250,173,197
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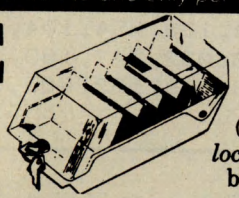

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1880 DATA 060,003,133,174,201,032,208,003,076,002,158,160,003,006,174,038,151
1890 DATA 175,136,208,249,024,173,106,158,101,175,133,175,120,165,001,041,092
1900 DATA 251,133,001,160,000,169,128,141,060,003,162,007,177,174,106,144,024
1910 DATA 011,072,173,060,003,029,062,003,157,062,003,104,202,016,239,024,196
1920 DATA 110,060,003,200,192,008,208,226,165,001,009,004,133,001,104,208,096
1930 DATA 001,088,160,000,174,073,003,185,062,003,157,075,003,232,200,192,072
1940 DATA 008,208,244,142,073,003,224,144,240,034,169,000,141,161,154,104,001
1950 DATA 133,175,104,133,174,104,170,104,168,024,104,096,169,013,141,070,090
1960 DATA 003,072,152,072,138,072,165,174,072,165,175,072,173,073,003,240,029
1970 DATA 018,024,105,004,133,174,160,000,185,071,003,032,049,154,200,196,228
1980 DATA 174,208,245,173,070,003,240,003,032,049,154,169,000,141,070,003,198
1990 DATA 141,073,003,024,144,180,208,208,169,000,133,252,133,253,032,121,026
2000 DATA 000,240,035,032,158,183,134,252,032,121,000,240,025,032,155,183,030
2010 DATA 169,000,162,004,032,175,155,160,011,185,127,154,032,049,154,200,233
2020 DATA 192,014,208,245,176,007,169,000,162,004,032,175,155,169,000,172,088
2030 DATA 136,002,133,113,132,114,162,025,032,048,158,032,225,255,240,055,070
2040 DATA 160,040,136,048,033,177,113,201,032,240,247,200,132,251,164,252,122
2050 DATA 240,008,169,032,032,127,157,136,208,248,160,000,177,113,032,127,174
2060 DATA 157,200,196,251,144,246,169,040,024,101,113,133,113,144,002,230,215
2070 DATA 114,202,208,196,032,048,158,076,098,154,169,015,168,162,008,032,048
2080 DATA 186,255,169,000,032,189,255,032,192,255,032,121,000,240,032,032,230
2090 DATA 158,173,032,163,182,133,253,134,251,132,252,162,015,032,201,255,224
2100 DATA 160,000,177,251,032,210,255,200,196,253,208,246,032,204,255,162,025
2110 DATA 015,032,198,255,032,207,255,032,210,255,201,013,208,246,169,015,039
2120 DATA 032,195,255,076,204,255,120,169,093,160,159,205,020,003,208,005,111
2130 DATA 204,021,003,240,018,174,020,003,142,154,159,174,021,003,142,155,097
2140 DATA 159,141,020,003,140,021,003,088,096,173,141,002,201,005,208,053,174
2150 DATA 165,203,201,037,240,006,201,026,240,046,208,041,165,251,072,165,219
2160 DATA 252,072,165,113,072,165,114,072,165,253,072,169,000,133,252,169,190
2170 DATA 001,133,253,032,132,158,104,133,253,104,133,114,104,133,113,104,212
2180 DATA 133,252,104,133,251,076,049,234,165,251,072,165,252,072,165,113,183
2190 DATA 072,165,114,072,165,253,072,165,254,072,173,017,208,041,032,240,067
2200 DATA 041,173,000,221,041,003,073,003,170,240,009,169,000,024,105,064,056
2210 DATA 202,208,251,170,173,024,208,041,008,240,005,138,024,105,032,170,207
2220 DATA 224,192,176,006,142,185,153,032,145,153,104,133,254,104,133,253,085
2230 DATA 024,144,166,032,121,000,176,017,032,138,173,032,247,183,165,020,134
2240 DATA 164,021,141,254,159,140,255,159,096,076,008,175,132,003,131,032,154
2250 DATA-1
```

```
5 REM" KA43/2  CENTRONICS WEDGE
10 DEF FNH(X)=INT(X/256):DEF FNL(X)=X-INT(X/256)*256
20 DEF FNDEK(X)=PEEK(X)+256*PEEK(X+1):L=1877
30 WH=FNDEK(55):INPUT"■■WEDGE AT TOP OF BASIC RAM  Y■■■";A$
35 IFA$="Y"GOTO50
40 INPUT"■WEDGE START  49152■■■■■■■";WL:WH=WL+L
50 WL=WH-L:VH=FNDEK(45):VL=VH-L:B=FNL(WL)
55 IF B=252 OR B=250 OR B=154 OR B=26 OR B=209 OR B=170 OR B=161 GOTO 517
60 POKE95,FNL(VL):POKE96,FNH(VL)
70 POKE90,FNL(VH):POKE91,FNH(VH)
80 POKE88,FNL(WH):POKE89,FNH(WH):SYS41919
90 PRINT"RESTART WEDGE WITH: SYS";WL
500 PRINT:IFWL=39083 GOTO510
505 FORX=1TO 78:READA,B,C:POKEWL+A,FNL(WL+B):POKEWL+A+C,FNH(WL+B):NEXT
510 IFWH=FNDEK(55)THENSYS WL+7:END
515 SYSWL:END
517 PRINT"■PLEASE RELOCATE !":END
520 DATA 003,100,1,026,072,2,033,003,1,036,004,1,052,005,1
530 DATA 058,006,1,116,005,1,215,005,1,228,270,1,293,468,1
540 DATA 296,390,1,312,468,1,335,468,1,352,468,1,355,390,1
550 DATA 445,390,1,506,613,2,523,622,1,529,623,1,538,741,2
560 DATA 555,758,1,561,759,1,570,814,2,580,853,2,597,868,1
570 DATA 603,869,1,628,503,1,717,502,1,729,502,1,736,502,1
580 DATA 763,502,1,871,814,1,890,503,1,067,504,1,138,218,1
590 DATA 152,877,1,159,912,1,166,953,1,332,468,1,910,504,1
600 DATA 796,231,1,821,503,1,829,452,1,768,503,1,904,787,1
610 DATA 442,468,1,145,893,1
620 DATA 1124,1471,1,1148,1413,1,1298,1367,1,1311,1471,1
630 DATA 1398,502,1,1445,390,1,1458,390,1,1502,772,1
640 DATA 1507,468,1,1510,390,1,1524,772,1,187,1679,1
650 DATA 1538,1413,1,1566,1236,1,1576,1236,1,1598,1413,1
660 DATA 1601,439,1,1681,1714,2,1698,1775,1,1704,1776,1
670 DATA 1757,1497,1,1838,270,1,1841,230,1,1868,1875,1
680 DATA 1871,1876,1,633,1129,1,826,1418,1,792,1064,1
690 DATA 173,1603,1,145,1473,1,180,1852,1
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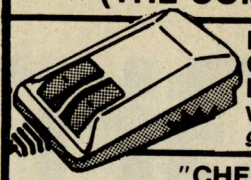

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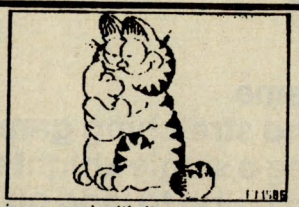

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Program

KNIGHT TOUR

by J. Barron

C16 & PLUS 4 game
This is a truly mind stretching game based on the problem of moving a single knight around a chess board. The object being to land on EVERY square but at no time must the knight land on a square a second time. J. Barron has done an excellent job on "Knight Tour". We hope you'll enjoy it.

```
10 VOL8
20 DIMEX(8,8),MX(8),MY(8)
30 REM KNIGHT TOUR
40 REM J.BARRON 1986
50 FORI=1TO11:UD$=UD$+CHR$(184):NEXT
60 I$="ILLEGAL MOVE"
70 PRINTCHR$(142)CHR$(8)
80 SCNCLR:COLOR1,7,0
90 PRINTTAB(14)"KNIGHT TOUR"
100 PRINTTAB(14)UD$
110 PRINT"THE AIM IS TO MOVE A LONE KNIGHT AROUND"
120 PRINT"A CHESSBOARD,SO THAT IT LANDS ON EACH"
130 PRINT"SQUARE ONCE,AND ONLY ONCE"
140 COLOR1,3,3:PRINT:PRINT
150 PRINT"A TO ATTEMPT IT YOURSELF":PRINT
160 PRINT"D FOR A COMPUTER DEMONSTRATION":PRINT
170 PRINT"E TO END"
180 GETA$:IFA$="E"THENEND
190 IFA$<>"A"ANDA$<>"D"THEN180
200 GOSUB260
210 FORXM=1TO8:FORYM=1TO8:READEX(XM,YM):NEXTYM,XM
220 FORXM=1TO8:READMX(XM),MY(XM):NEXT
230 IFA$="A"THENGOSUB460
240 IFA$="D"THENGOSUB940
250 RUN
260 SCNCLR:COLOR1,1
270 PRINTTAB(14)"KNIGHT TOUR"
280 PRINTTAB(14)UD$
290 PRINTTAB(11)"A B C D E F G H":PRINT
300 FORI=1TO8:PRINTTAB(8)I;SPC(16)I:PRINT:NEXT:PRINT
310 PRINTTAB(11)"A B C D E F G H"
320 BA=3243
330 FORYM=0TO7:FORXM=0TO7
340 IF(XM+YM)/2<>INT((XM+YM)/2)THENCD=160:ELSECD=32
350 POKEBA+XM*2+YM*80,CD
360 POKEBA+XM*2+YM*80+1,CD
370 POKEBA+XM*2+YM*80+40,CD
380 POKEBA+XM*2+YM*80+41,CD
```

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Program

```
390 NEXTXM,YM
400 BA=3202
410 FORI=0TO16:POKEBA+I,160:POKEBA+I-1024,0:NEXT:BA=BA+I
420 FORI=0TO16*40STEP40:POKEBA+I,160:POKEBA+I-1024,0:NEXT:BA=BA+I
430 FORI=0TO16:POKEBA-I,160:POKEBA-I-1024,0:NEXT:BA=BA-I
440 FORI=0TO16*40STEP40:POKEBA-I,160:POKEBA-I-1024,0:NEXT
450 RETURN
460 CHAR1,0,22,"YOUR ATTEMPT"
470 CHAR1,0,23,"ENTER STARTING POINT "
480 GETA$:IFASC(A$)<65ORASC(A$)>72THEN480
490 X=ASC(A$)-64:PRINTA$;
500 GETA$:IFASC(A$)<49ORASC(A$)>56THEN500
510 Y=ASC(A$)-48:PRINTA$
520 N$=" 1":T$=CHR$(28)
530 IF(X+Y)/2<>INT((X+Y)/2)THENT$=T$+CHR$(18)
540 CHAR1,2*X+9,2*Y+2,T$+N$+CHR$(146)+CHR$(144)
550 CHAR1,0,22,CHR$(27)+"QMOVE TO ? "
560 GETA$:IFASC(A$)<65ORASC(A$)>72THEN560
570 X1=ASC(A$)-64:PRINTA$;
580 GETA$:IFASC(A$)<49ORASC(A$)>56THEN580
590 Y1=ASC(A$)-48:PRINTA$
600 DX=ABS(X-X1):DY=ABS(Y-Y1)
610 IFDX<1ORDX>2ORDY<1ORDY>2ORDX=DYTHENSOUND1,100,20:CHAR1,0,24,I$:
                                                          GOTO550

620 IF(PEEK(3162+2*X1+80*Y1)AND127)<>32THENSOUND1,100,20:CHAR1,0,24,
                                                          I$:GOTO550

630 N=VAL(N$)+1
640 N$=RIGHT$(STR$(N),2)
650 REM ASSESS MOVE
660 FORM=1TO8:XM=X+MX(M):YM=Y+MY(M)
670 IFXM<1ORXM>8ORYM<1ORYM>8THEN700
680 IF(PEEK(3162+2*XM+80*YM)AND127)<>32THEN700
690 EX(XM,YM)=EX(XM,YM)-1
700 NEXTM:T$=CHR$(28)
710 IF(X1+Y1)/2<>INT((X1+Y1)/2)THENT$=T$+CHR$(18)
720 CHAR1,2*X1+9,2*Y1+2,T$+N$+CHR$(146)+CHR$(144)
730 FORM=1TO8:XM=X+MX(M):YM=Y+MY(M)
740 IFXM<1ORXM>8ORYM<1ORYM>8THEN770
750 IF(PEEK(3162+2*XM+80*YM)AND127)<>32THEN770
760 IFEX(XM,YM)<EX(X1,Y1)THENM=99
770 NEXTM:CHAR1,0,24,CHR$(27)+"Q"
780 IFM=100THENSOUND3,1015,5:CHAR1,0,24,"POOR MOVE"
790 IFM<100THENSOUND1,800,5:CHAR1,0,24,"GOOD MOVE"
800 REM CHECK FOR LEGAL MOVE
810 FORTX=1TO8
820 FORTY=1TO8
830 DX=ABS(X1-TX):DY=ABS(Y1-TY)
840 IFDX<1ORDX>2ORDY<1ORDY>2ORDX=DYTHEN870
850 IF(PEEK(3162+2*TX+80*TY)AND127)<>32THEN870
860 TX=99:TY=99
870 NEXTTY,TX
880 IFTY=100THENX=X1:Y=Y1:GOTO550
890 CHAR1,0,22,CHR$(27)+"QGAME OVER"
900 CHAR1,0,23,"YOU ACHIEVED "+N$+" MOVES  "
910 IFN$="64"THENGOSUB1250
920 CHAR1,0,24,"ANY KEY TO CONTINUE
930 GETKEYA$:RETURN
940 CHAR1,0,22,"MY DEMONSTRATION"
```

Program

```
950 CHAR1,0,23,"ENTER STARTING POINT "
960 GETA$:IFASC(A$)<65ORASC(A$)>72THEN960
970 X=ASC(A$)-64:PRINTA$;
980 GETA$:IFASC(A$)<49ORASC(A$)>56THEN980
990 Y=ASC(A$)-48:PRINTA$
1000 N$=" 1":T=TI
1010 T$=CHR$(28)
1020 IF(X+Y)/2<>INT((X+Y)/2)THENT$=T$+CHR$(18)
1030 CHAR1,2*X+9,2*Y+2,T$+N$+CHR$(146)+CHR$(144)
1040 B=8:EX(X,Y)=99:IFVAL(N$)=64THEN1120
1050 FORM=1TO8:XM=X+MX(M):YM=Y+MY(M)
1060 IFXM<1ORXM>8ORYM<1ORYM>8THEN1100
1070 IFEX(XM,YM)=99THEN1100
1080 EX(XM,YM)=EX(XM,YM)-1:N=EX(XM,YM)-RND(0)/100
1090 IFN<BTHENB=N:BX=XM:BY=YM
1100 NEXTM:X=BX:Y=BY:CHAR1,0,24,"MY MOVE "+CHR$(X+64)+CHR$(Y+48)
1110 N$=RIGHT$(STR$(VAL(N$)+1),2):GOTO1010
1120 T=TI-T
1130 CHAR1,0,23,"I'VE FINISHED (IN"+STR$(INT(T/6+.5)/10)+" SECONDS)"
1140 CHAR1,0,24,"ANY KEY TO CONTINUE"+CHR$(154)
1150 GETKEYA$:RETURN
1160 DATA2,3,4,4,4,4,3,2
1170 DATA3,4,6,6,6,6,4,3
1180 DATA4,6,8,8,8,8,6,4
1190 DATA4,6,8,8,8,8,6,4
1200 DATA4,6,8,8,8,8,6,4
1210 DATA4,6,8,8,8,8,6,4
1220 DATA3,4,6,6,6,6,4,3
1230 DATA2,3,4,4,4,4,3,2
1240 DATA-2,1,-1,2,1,2,2,1,2,-1,1,-2,-1,-2,-2,-1
1250 RESTORE1290:REM TUNE
1260 READN,D
1270 IFN<>999THENSOUND1,N,D:GOTO1260
1280 RETURN
1290 DATA704,48,685,16,643,48,685,16,704,32,739,32,770,32,704,32,
                                                    785,32,770,32
1300 DATA739,32,704,32,685,32,643,32,685,32,596,32,704,48,685,16,
                                                    643,48,685,16
1310 DATA704,32,739,32,770,32,834,32,810,16,770,48,739,48,770,16,
                                                    704,96,999,1
```

Program

SPRITES & INTERRUPTS

by C. Cloke

C-64

This is a suite of 2 main programs and three examples. The object of the programs is to enable a BASIC programmer to have a level of control over Raster interrupts and Sprites previously only available to machine code programmers. The examples are fairly simple but serve to demonstrate this new found power without clouding the issue. The author has clearly thought long and hard and worked this out very well indeed.

Basic Raster Interrupts

In order to utilise this program it is not necessary to have a complete working knowledge of raster interrupts, but I will briefly outline the main points here.

The picture produced by the computer on the monitor/television screen is made up of many horizontal lines. The computer divides these into 256 pixel lines stretching from the top of screen to the bottom. The VIC II can tell which line the VDU is currently undating and trigger a machine-code routine when a pre-defined line is reached. The machine-code routine is called an interrupt and the 256 pixel lines are called rasters, hence the name raster interrupts.

This allows the computer to create some quite stunning graphical displays. For example, the VIC II can be told to interrupt at raster line 128, half-way down the screen, and again at raster line 0, right at the top of the screen. Then the border colour can be changed to red at line 0 and then black at line 128. As a result, the upper half of the screen will display a red border and the lower half a black border.

This principle can be extended to screen colours, bit-map mode and text mode, and even displays more than 8 sprites (8 can be generated in each half of the screen, giving a total of 16). The user is not just limited to 2 areas: 3 rasters could be used, for example, to generate 3 different areas (and 24 sprites!). This use is demonstrated example program #1.

Raster interrupts also have another major use. When moving sprites smoothly across the screen they can often flicker or jerk for a brief second. This annoying flicker can be overcome by updating the sprite positions in the VIC II when the current raster is in the border area. Therefore, setting up a single raster interrupts at line 0, and updating the sprite positions here will eliminate any such flicker. This use is demonstrated in example program #3.

To allow maximum flexibility this utility creates 'false' VIC IIs for eash raster interrupt. Each false VIC II is copied into the real VIC II when the desired raster line is reached. The false VIC IIs exactly mimic the VIC II and are located at 64 byte intervals, starting at 49664 (hex: $C200). So, if 2 raster are being used:

False VIC II 1 — 49664 (hex: $c200) to 49711 (hex: $c42f)

False VIC II 2 — 49728 (hex: $c240) to 49775 (hex: $c26f)

If a third false VIC II was being used, it would start at 49792 (hex: $c280). Therefore, all VIC II pokes must be redirected to these false VIC IIs.

To activate the raster interrupts use the command SYS 49152,xx,yy where xx and yy are the raster lines to be interrupted at. Any numer of interrupts can be specified in this manner. However, the more raster interrupts created the more the likelihood of the computer crashing, due to timing problems. To turn the raster interrupts off, use the command SYS 49391.

```
0 REM ************************************
1 REM *                                  *
2 REM *     BASIC RASTER INTERRUPTS      *
3 REM *                                  *
4 REM *          (C) BY A. CLOKE         *
5 REM *                                  *
6 REM ************************************
10 L= 49152
20 FOR X=0 TO  19 :T=0:FOR Y=0 TO 14
30 READ A:IF A <0 OR A >255 THEN 60
40 POKE L,A:L=L+1:T=T+A:NEXT
50 READ A:T=T-(INT(T/256)*256)
60 IF T<>A THEN PRINT"DATA ERROR IN LINE"1000+(X*10)"CHECKSUM <>"A:STOP
70 PRINT 1000+(X*10)"OK":NEXT
1000 DATA 032,253,174,032,158,183,216,120,173,020,003,201,152,208,007,140
1010 DATA 173,021,003,201,192,240,045,173,020,003,141,008,193,173,021,071
1020 DATA 003,141,009,193,169,000,141,014,220,169,001,141,026,208,173,072
1030 DATA 017,208,041,127,141,017,208,169,152,141,020,003,169,192,141,210
1040 DATA 021,003,169,000,141,024,193,173,024,193,201,008,240,065,138,057
1050 DATA 174,024,193,157,010,193,138,162,000,134,252,160,006,010,038,115
```

```
1060 DATA 252,136,208,250,133,251,165,252,105,194,133,252,162,000,160,093
1070 DATA 000,152,221,018,193,208,003,232,208,005,185,000,208,145,251,237
1080 DATA 200,192,047,208,237,238,024,193,169,044,160,000,209,122,208,203
1090 DATA 003,076,000,192,169,000,141,025,193,173,010,193,141,018,208,006
1100 DATA 088,096,216,173,025,208,141,025,208,173,025,193,162,000,134,075
1110 DATA 252,160,006,010,038,252,136,208,250,133,251,165,252,105,194,108
1120 DATA 133,252,160,000,162,000,152,221,018,193,208,003,232,208,005,155
1130 DATA 177,251,153,000,208,200,192,047,208,237,238,025,193,173,025,023
1140 DATA 193,205,024,193,208,005,169,000,141,025,193,170,189,010,193,126
1150 DATA 173,008,193,141,020,003,173,009,193,141,021,003,169,240,141,092
1160 DATA 026,208,088,169,001,141,014,220,096,000,000,000,255,000,255,193
1170 DATA 000,255,000,255,018,025,026,030,031,000,000,000,000,000,000,128
1180 DATA 000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000
```

Sprite Interrupts

This utility allows a BASIC program to start a sprite moving in a specified direction, with a certain velocity. The sprite will then complete the move independently of the BASIC program.

The command takes the form:

SYS 50176,Sprite#(0-7),Direction, X-velocity (1-255), Y-velocity (1-255),# of moves to be made (1-255)

Where the direction is:

```
 9   1   3
     !
     !
 8   *   2
     !
     !
12   4   6
```

When the selected number of moves have been completed the sprite will stop. The number of moves remaining are contained in locations 50488-50495 for sprites 0-7 respectively. This routine is demonstrated in program example #2.

This routine can be used in conjunction with the raster interrupt routine to give flicker-free movement of the sprites. The sprite interrupt routine must be told to use the false VIC II instead of the real VIC II. This is done by altering locations 50278 and 50282 to the high-order and low-order bytes respectively. The sprite routine must be redirected to the first false VIC II, at location $C200 hex. So the low-order byte is 0 and the high-order byte is 194 ($C2 hex). Program example #3 demonstrates how this can be done and shows how it eliminiates the sprite flicker present in example #2.

```
0 REM ************************************
1 REM *                                  *
2 REM *        SPRITE INTERRUPTS         *
3 REM *                                  *
4 REM *         (C) BY A. CLOKE          *
5 REM *                                  *
6 REM ************************************
10 L= 50176
20 FOR X=0 TO  18 :T=0:FOR Y=0 TO 14
30 READ A:IF A <0 OR A >255 THEN 60
40 POKE L,A:L=L+1:T=T+A:NEXT
50 READ A:T=T-(INT(T/256)*256)
60 IF T<>A THEN PRINT"DATA ERROR IN LINE"1000+(X*10)"CHECKSUM <>"A:STOP
70 PRINT 1000+(X*10)"OK":NEXT
1000 DATA 032,253,174,032,158,183,224,008,176,081,142,026,197,032,080,006
1010 DATA 196,201,015,176,071,157,032,197,032,080,196,157,040,197,032,243
1020 DATA 080,196,157,048,197,032,080,196,157,056,197,173,020,003,201,001
1030 DATA 096,208,008,173,021,003,201,196,240,024,120,173,020,003,141,091
1040 DATA 027,197,173,021,003,141,028,197,169,096,141,020,003,169,196,045
1050 DATA 141,021,003,088,096,032,253,174,032,158,183,138,174,026,197,180
1060 DATA 096,162,014,076,055,164,169,000,141,029,197,169,000,133,251,120
1070 DATA 169,208,133,252,174,029,197,189,056,197,208,003,076,010,197,050
1080 DATA 160,016,177,251,174,029,197,240,004,074,202,208,252,041,001,234
1090 DATA 141,031,197,173,029,197,170,010,168,189,032,197,041,001,240,024
1100 DATA 010,200,177,251,056,253,048,197,145,251,136,189,032,197,041,135
1110 DATA 002,240,013,177,251,024,125,040,197,145,251,144,003,238,031,089
1120 DATA 197,189,032,197,041,004,240,010,200,177,251,024,125,048,197,140
1130 DATA 145,251,136,189,032,197,041,008,240,013,177,251,056,253,040,237
1140 DATA 197,145,251,176,003,206,031,197,142,030,197,169,001,224,000,177
1150 DATA 240,004,010,202,208,252,072,174,030,197,173,031,197,041,001,040
1160 DATA 240,010,160,016,104,017,251,145,251,076,007,197,160,016,104,218
1170 DATA 160,016,073,255,049,251,145,251,222,056,197,238,029,197,173,008
1180 DATA 029,197,201,008,240,003,076,109,196,108,027,197,000,000,000,111
```

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CCI

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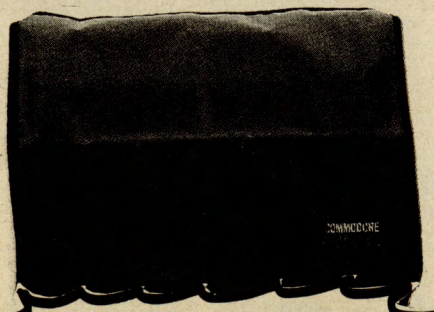

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SEE PAGE 57 FOR ORDER FORM

Program

```
0 REM ************************************
1 REM *                                  *
2 REM * EXAMPLE #1 - RASTER INTERRUPT    *
3 REM *                                  *
4 REM ************************************
10 SYS 49152,0,122              :REM SET UP INTERRUPT
20 V1=49664                     :REM FALSE VIC II #1
30 V2=49728                     :REM FALSE VIC II #2
40 POKEV1+32,2                  :REM SET UPPER FOREGROUND COLOUR
50 POKEV2+32,14                 :REM SET LOWER FOREGROUND COLOUR
60 POKEV1+33,0                  :REM SET UPPER BACKGROUND COLOUR
70 POKEV2+33,6                 :REM SET LOWER BACKGROUND COLOUR
80 X=PEEK(V1+24)OR8            :REM SET BIT-MAP BASE AT 8196
90 POKEV1+24,X
100 X=PEEK(V1+17)OR32           :REM ENTER BIT-MAP MODE
110 POKEV1+17,X                 :REM FOR UPPER PART OF SCREEN
120 X=PEEK(V2+17)AND223         :REM ENTER TEXT
130 POKEV2+17,X                 :REM FOR LOWER PART OF SCREEN
140 FOR I=832 TO 896            :REM SET UP SPRITE
150 POKE I,255                  :REM DATA
160 NEXT
170 FOR I=2040 TO 2047          :REM SET SPRITE POINTERS
180 POKE I,13
190 NEXT I
200 FOR I=0 TO 15               :REM SET UP SPRITE COLOURS
210 POKE V1+I+39,I*2+1          :REM FOR UPPER SCREEN
220 POKE V2+I+39,I*2+1          :REM AND FOR LOWER SCREEN
230 NEXT
240 POKE V1+16,192              :REM SET UP MSB
250 POKE V2+16,192
260 FOR I=30 TO 230 STEP 40 :REM SET UP X SPRITE POSITIONS
270 IF I=>110 THEN 300
280 POKE V1+J+12,I-15
290 POKE V2+J+12,I-15
300 POKE V1+J,I
310 POKE V2+J,I
320 J=J+2
330 NEXT
340 FOR I=1 TO 15 STEP 2
350 POKEV1+I,80                 :REM SET UP Y SPRITE POSITIONS
360 POKEV2+I,160
370 NEXT
380 POKEV1+21,255               :REM TURN ALL SPRITES ON
390 POKEV2+21,255
```

```
0 REM ************************************
1 REM *                                  *
2 REM * EXAMPLE #2 - SPRITE INTERRUPT    *
3 REM *                                  *
4 REM ************************************
10 DIM M(7)
20 V=53248
30 POKE V+21,255                  :REM TURN ALL SPRITES ON
40 FOR I=0 TO 15 STEP 2          :REM SET UP INITIAL
50 POKE V+I,150 : POKE V+I+1,128:REM SPRITE POSTIONS
60 NEXTI
70 FOR I=896 TO 960               :REM SET UP SPRITE DEFINITION
```

Program

```
80 POKE I,255
90 NEXTI
100 BASE=50488                          :REM SET SPRINT BASE VARIABLE
110 FOR I=0 TO 7                        :REM SET UP PARAMETERS
120 READA:M(I)=A
130 POKE 2040+I,14
140 POKE BASE+I,0
150 POKE V+39+I,I
160 NEXTI
170 DATA 1,3,2,6,4,12,8,9
180 FOR I=0 TO 7                        :REM MAIN LOOP
190 IF PEEK(BASE+I)<>0 THEN 260         :REM IF NO MORE MOVES
200 S1=INT(RND(TI)*3)+1                 :REM SET UP A NEW MOVEMENT
210 S2=INT(RND(TI)*3)+1
220 M=INT(RND(TI)*7)
230 POKEV+I*2,150
240 POKEV+I*2+1,128
250 SYS50176,I,M(M),S1,S2,50
260 NEXTI
270 GOTO 180                            :REM CONTINUAL LOOP



0 REM ********************************************
1 REM *                                          *
2 REM * EXAMPLE #3 - SPRITE & RASTER INTERRUPT *
3 REM *                                          *
4 REM ********************************************
10 POKE 50278,0                         :REM SET UP HIGH &
20 POKE 50282,194                       :REM LOW BYTES OF FALSE VIC
30 SYS 49152,0                          :REM SET UP RASTER INTERRUPT
40 DIM M(7)
50 V=49664
60 POKE V+21,255                        :REM TURN ALL SPRITES ON
70 FOR I=0 TO 15 STEP 2                 :REM SET UP INITIAL
80 POKE V+I,150 : POKE V+I+1,128        :REM SPRITE POSTIONS
90 NEXTI
100 FOR I=896 TO 960                    :REM SET UP SPRITE DEFINITION
110 POKE I,255
120 NEXTI
130 BASE=50488                          :REM SET SPRINT BASE VARIABLE
140 FOR I=0 TO 7                        :REM SET UP PARAMETERS
150 READA:M(I)=A
160 POKE 2040+I,14
170 POKE BASE+I,0
180 POKE V+39+I,I
190 NEXTI
200 DATA 1,3,2,6,4,12,8,9
210 FOR I=0 TO 7                        :REM MAIN LOOP
220 IF PEEK(BASE+I)<>0 THEN 290         :REM IF NO MORE MOVES
230 S1=INT(RND(TI)*3)+1                 :REM SET UP A NEW MOVEMENT
240 S2=INT(RND(TI)*3)+1
250 M=INT(RND(TI)*7)
260 POKEV+I*2,150
270 POKEV+I*2+1,128
280 SYS50176,I,M(M),S1,S2,50
290 NEXTI
300 GOTO 210                            :REM CONTINUAL LOOP
```

Program

HUNDRED YEAR CALENDAR

by John Wigmore

C-64
This is for the C-64 but easily modified to work on most Commodore machines. It is an interesting idea for a short basic programme that will give a calendar type display of any month since the turn of the century.

```
10 REM ********************************
20 REM *    HUNDRED YEAR CALENDAR     *
30 REM * BY JOHN WIGMORE - SCUNTHORPE *
40 REM *       COPYRIGHT 1987         *
50 REM ********************************
60 POKE 53281,11: POKE 53280,11
70 POKE 53282,1: POKE 53283,7
80 POKE 53284,0: POKE 53265,219
90 CR$=CHR$(29):CD$=CHR$(17)
100 CL$=CHR$(157):RV$=CHR$(18)
110 DIM M$(12),M(12):HM$=CHR$(19)
120 FOR I=1 TO 12:READ M$(I):NEXT
130 FOR I=1 TO 12:READ M(I):NEXT
140 D=5: REM 1 JAN 1987 WAS THURSDAY
150 D1=87*365+INT(87/4)
160 REM 1900 NO LEAP YEAR
170 D1=D1-INT(D1/7)*7
180 REM NUMBER DAYS ADVANCED
190 D=D-D1:IF D<1 THEN D=D+7
200 REM D IS DAY OF WEEK ON 1 JAN 1900
210 PRINT CHR$(147);"THIS PROGRAM WILL PRINT UP THE
220 PRINT"CALENDAR FOR ANY MONTH FROM
230 PRINT"JANUARY 1900 TO DECEMBER 1999
240 PRINT HM$;CHR$(144);:FOR X=1 TO 17:PRINT CD$;:NEXT:PRINT
250 INPUT "ENTER MONTH - (1 TO 12)";MM
260 IF MM>0 AND MM<13 THEN 280
270 PRINT"REAL MONTHS ONLY":GOTO 250
280 INPUT "ENTER  YEAR";YY
290 IF YY>=0 AND YY<=99 THEN 320
300 IF YY>=1900 AND YY<=1999 THEN YY=YY-1900:GOTO 320
310 PRINT"PLAY FAIR":GOTO 280
320 D1=D:Y=YY:L=0
330 IF YY/4=INT(YY/4) AND MM=2 THEN L=1
340 IF YY=0 THEN L=0
350 IF Y=0 THEN 370
360 D1=D1+365:Y=Y-1:GOTO 350
370 D1=D1+INT(YY/4)
380 IF MM>2 THEN 410
390 IF YY=0 THEN 410
400 D1=D1-1
410 I=MM
420 I=I-1:IF I=0 THEN 440
```

Program

```
430 D1=D1+M(I):GOTO 420
440 D1=D1-7*INT(D1/7)
450 IF D1=0 THEN D1=7
460 PRINT CHR$(147);RV$;:FORI=1TO39:PRINT" ";:NEXT:PRINT
470 FOR I=1 TO 15
480 PRINT RV$;" ";:FORJ=1TO37:PRINT CR$;:NEXT:PRINT" ":NEXT
490 PRINT RV$;:FORI=1 TO 39:PRINT" ";:NEXT:PRINT
500 S=(34-LEN(M$(MM)))/2
510 PRINT HM$;RV$;:FOR I=1 TO S:PRINT CR$;:NEXT:PRINT M$(MM);" ";1900+YY
520 PRINT HM$;CD$;CD$;CR$;CR$;" SUN  MON  TUE  WED  THU  FRI  SAT":PRINT
530 D2=0
540 FOR I=1 TO D1:PRINT CR$;CR$;CR$;CR$;CR$;:D2=D2+1:NEXT:PRINT CL$;CL$;
550 FOR I=1 TO M(MM)+L
560 I$=STR$(10000+I)
570 I$=RIGHT$(I$,2)
580 PRINT I$;:IF I<10 THEN PRINT CL$;CL$;" ";CR$;
590 PRINT CR$;CR$;CR$;
600 D2=D2+1
610 IF D2=8 THEN D2=1:PRINT:PRINT:PRINT CR$;CR$;CR$;
620 NEXT
630 PRINT CHR$(19):FOR I=1 TO 20:PRINT:NEXT
640 PRINT"          <SPACE BAR> TO CONTINUE"
650 GET A$:IF A$<>" " THEN 650
660 GOTO 240
670 DATA JANUARY,FEBRUARY,MARCH
680 DATA APRIL,MAY,JUNE
690 DATA JULY,AUGUST,SEPTEMBER
700 DATA OCTOBER,NOVEMBER,DECEMBER
710 DATA 31,28,31,30,31,30
720 DATA 31,31,30,31,30,31
```

★ Programme Submission Procedure ★

DO NOT submit any programme or routine that you do not either own or have proper authority to do so.

ALWAYS include your name, address and the date on all material and any enclosures.
Do not forget to to make it clear exactly which computer/s your programme or article is applicable to.

Include ROM or DOS versions wherever they are pertinent.

Number all pages.

If you have to submit work which is hand-written then you must make sure it is printed clearly.

Never use staples. Use paperclips if necessary.
If you are saving your programme to tape then save it AT LEAST twice on each side.
When you save a programme on disk save it twice and call the second file "BACKUP".

Remember to label all tapes and disks with your name and the title of the programme. Label tape or disk with your name and the name or title of the programme.

Always ensure that disks are well packaged. They should ideally be sent in a commercial disk mailer or at least packed between two pieces of hardboard or rigid plastic.

Please allow at least 8 weeks for acknowledgement as all programmes have to be thoroughly tested and made into a suitable format.

Enclose a self-addressed stamped envelope or package if you would like your programme to be returned.

★ Programming tips ★
If you can, use CHR$(x) type commands instead of those hard to read graphic symbols.
If necessary renumber your programme on completion as many readers use auto number utilities to ease typing in.

Try to keep instructions within the programme itself as a sensible level. You can expand on them within the accompanying text if necessary.

TEST your programmes before submitting them or even better get a friend to test them for you.

If a programme contains machine code data please use decimal and not hex as there are fewer digits to be confused. Try and keep the same number of data statements in each line. Please add some form of error checking if your programme contains any more than five lines of data. There is a suitable routine at the end of this article.

Program

EASYDISK-640

by M. Medhurst

C-64
A machine code program to give access to some of the more inaccessible Commodore DOS commands. It is available to the user from both direct and program mode. It's a pity Mr Medhurst didn't include a Directory facility but that's life! We believe that it is still very useful.

```
0 REM ************************************
1 REM *                                  *
2 REM *     EASYDISK-64 BASIC LOADER     *
3 REM *    WRITTEN BY B.MEDHURST 1987    *
4 REM *                                  *
5 REM ************************************
10 PRINT CHR$(147);"READING DATA..."
20 L=49152
30 FOR X=0 TO 64:T=0:FOR Y=0 TO 14
40 READ A:IF A <0 OR A >255 THEN 70
50 POKE L,A:L=L+1:T=T+A:NEXT
60 READ A:T=T-(INT(T/256)*256)
70 IF T<> A THEN PRINT"DATA ERROR IN LINE:"1000+(X*10)"CHECKSUM <>"A:STOP
80 PRINT 1000+(X*10)"OK":NEXT
90 PRINT CHR$(147);"PRESS SPACE TO SAVE M/C"
100 GETK$:IFK$<>" "THEN100
110 REM *** SAVE M/C ***
120 POKE 43,0:POKE 44,192
130 POKE 45,203:POKE 46,195
140 SAVE"EASYDISK-64",8
1000 DATA 169,048,141,201,195,169,058,141,202,195,234,234,169,115,160,  127
1010 DATA 228,032,030,171,169,085,160,192,032,030,171,169,096,160,228,  161
1020 DATA 032,030,171,169,046,160,192,032,030,171,076,096,192,000,147,  008
1030 DATA 013,013,032,032,032,032,069,065,083,089,068,073,083,075,045,  036
1040 DATA 054,052,032,032,066,089,032,066,046,077,069,068,072,085,082,  154
1050 DATA 083,084,032,049,057,056,055,013,013,000,051,056,057,049,049,  192
1060 DATA 000,169,000,133,198,096,169,076,133,115,169,109,133,116,169,  249
1070 DATA 192,133,117,096,230,122,208,002,230,123,032,121,000,201,095,  110
1080 DATA 240,003,076,121,000,165,123,201,002,208,247,032,145,192,169,  132
1090 DATA 000,133,198,076,115,000,234,234,234,234,169,216,160,192,032,  179
1100 DATA 030,171,165,197,201,060,208,250,169,000,133,144,169,008,032,  145
1110 DATA 180,255,032,171,255,162,010,160,001,165,144,208,006,162,025,  144
1120 DATA 160,008,132,186,132,057,165,144,201,000,240,020,169,032,160,  014
1130 DATA 193,032,030,171,169,000,133,162,165,162,201,160,208,250,076,  064
1140 DATA 000,192,076,064,193,000,147,013,013,032,032,032,032,032,032,  122
1150 DATA 032,032,032,069,078,083,085,082,069,032,068,082,073,086,069,  204
```

Program

```
1160 DATA 032,073,083,032,065,067,084,073,086,069,013,013,032,032,032,  018
1170 DATA 032,032,032,080,082,069,083,083,032,083,080,065,067,069,032,  153
1180 DATA 066,065,082,032,084,079,032,067,079,078,084,073,078,085,069,  029
1190 DATA 013,000,000,013,032,032,032,032,032,032,032,032,032,032,032,  122
1200 DATA 032,068,082,073,086,069,032,078,079,084,032,082,069,065,068,  231
1210 DATA 089,033,013,000,000,169,044,160,192,032,030,171,169,136,160,  118
1220 DATA 193,032,030,171,165,197,201,056,208,003,076,066,194,201,059,  060
1230 DATA 208,003,076,074,194,201,008,208,003,076,060,195,201,011,208,  190
1240 DATA 003,076,079,195,201,016,208,003,076,098,195,201,019,208,003,  045
1250 DATA 076,117,195,201,024,208,003,076,113,194,201,027,208,201,076,  128
1260 DATA 091,192,013,032,032,032,032,032,032,032,032,032,032,032,032,  168
1270 DATA 049,046,073,078,073,084,073,065,076,073,090,069,013,013,032,  139
1280 DATA 032,032,032,032,032,032,032,032,032,032,032,050,046,086,065,  087
1290 DATA 076,073,068,065,084,069,013,013,032,032,032,032,032,032,032,  173
1300 DATA 032,032,032,032,032,051,046,070,079,082,077,065,084,013,013,  228
1310 DATA 032,032,032,032,032,032,032,032,032,032,032,032,052,046,083,  053
1320 DATA 067,082,065,084,067,072,013,013,032,032,032,032,032,032,032,  175
1330 DATA 032,032,032,032,032,053,046,082,069,078,065,077,069,013,013,  213
1340 DATA 032,032,032,032,032,032,032,032,032,032,032,032,054,046,067,  039
1350 DATA 079,080,089,013,013,032,032,032,032,032,032,032,032,032,032,  082
1360 DATA 032,032,055,046,068,073,083,075,032,083,084,065,084,085,083,  212
1370 DATA 013,013,032,032,032,032,032,032,032,032,032,032,032,032,056,  210
1380 DATA 046,069,088,073,084,013,000,000,169,073,141,101,194,076,079,  182
1390 DATA 194,169,086,141,101,194,169,015,168,162,008,032,186,255,169,  001
1400 DATA 000,032,189,255,032,192,255,162,015,032,201,255,169,073,032,  102
1410 DATA 210,255,169,013,032,210,255,032,204,255,169,170,160,194,032,  056
1420 DATA 030,171,169,015,168,162,008,032,186,255,169,000,032,189,255,  049
1430 DATA 032,192,255,162,015,032,198,255,032,207,255,201,013,240,005,  046
1440 DATA 032,210,255,208,244,169,015,032,195,255,032,204,255,165,197,  164
1450 DATA 201,064,240,250,076,064,193,147,013,032,032,032,032,032,032,  160
1460 DATA 032,032,032,032,032,032,068,073,083,075,032,083,084,065,084,  071
1470 DATA 085,083,013,013,032,032,032,032,032,032,032,032,032,032,032,  034
1480 DATA 032,000,147,013,073,078,080,085,084,058,068,073,083,075,032,  213
1490 DATA 085,084,058,078,069,087,032,078,065,077,069,061,079,076,068,  123
1500 DATA 032,078,065,077,069,013,013,000,147,013,073,078,080,085,084,  042
1510 DATA 058,083,067,082,065,084,067,072,032,070,073,076,069,013,013,  139
1520 DATA 000,147,013,073,078,080,085,084,058,067,079,080,089,032,078,  156
1530 DATA 065,077,069,061,070,073,076,069,032,078,065,077,069,013,013,  019
1540 DATA 000,000,000,169,000,133,198,169,078,141,200,195,169,210,160,  139
1550 DATA 194,032,030,171,076,133,195,169,000,133,198,169,083,141,200,  030
1560 DATA 195,169,005,160,195,032,030,171,076,133,195,169,000,133,198,  132
1570 DATA 169,082,141,200,195,169,233,160,194,032,030,171,076,133,195,  069
1580 DATA 169,000,133,198,169,067,141,200,195,169,028,160,195,032,030,  132
1590 DATA 171,160,000,032,207,255,153,203,195,200,201,013,208,245,192,  094
1600 DATA 002,208,003,076,064,193,169,015,168,162,008,032,186,255,169,  131
1610 DATA 000,032,189,255,032,192,255,162,015,032,201,255,162,000,189,  174
1620 DATA 200,195,201,013,240,007,032,210,255,232,076,176,195,032,210,  179
1630 DATA 255,032,204,255,076,113,194,096,000,000,000,000,000,000,000,  226
1640 DATA 255,032,204,255,076,113,194,096,000,000,000,000,000,000,000,  201
```

```
10 REM **   EASYDISK-64 M/C LOADER   **
20 REM ** WRITTEN BY B.MEDHURST 1987 **
30 C=C+1:IFC=1THENLOAD"EASYDISK-64",8,1
40 SYS49152:NEW
```

CLASSIFIED

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